

EVENT PREVIEW

Advance

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YOUR CAREER
AND YOUR
BUSINESS AT
FABTECH 2018

ATLANTA
NOV 6-8

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FABTECH

NORTH AMERICA'S LARGEST METAL FORMING,
FABRICATING, WELDING AND FINISHING EVENT

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INSIDE:

- EXHIBITOR LIST
- SPECIAL EVENTS
- SCHEDULE-AT-A-GLANCE
- EDUCATION PROGRAMS
- HOTEL AND TRAVEL
- PLANNING TOOLS



GET CONNECTED with TRUMPF



FABTECH is the perfect opportunity to get connected with TRUMPF. We invite you to stop by our booths to see our latest selection of machine technology, automation, software and services. Talk with our experts and learn how a smart connection with TRUMPF can keep you ahead of your competition. With 3 booths, 9 production technologies and 13 machines in operation, we hope to have what it takes to make your fab shop a digital success.

FABTECH Booths B5609, B6309, C10574 / www.trumpf.com

Punch/Laser – Laser Cutting – 3D Laser Processing – Tube Laser Cutting – Bending – Automation – Additive Manufacturing – Laser Welding – Laser Marking – Power Tools – Software – Financing – Technical Services



LOCATION

Georgia World Congress Center

285 Andrew Young International Blvd NW
Atlanta, GA 30313



LEARN

Gain valuable, can't-miss insights from best-in-class education and training programs that target technical, operational and managerial segments.



CONNECT

Visionary keynotes, expert panels and other special events allow attendees to network with peers, exchange best practices and learn about the latest industry advancements.



COMPARE

Discover advanced technologies that improve quality and productivity, and compare innovative solutions from more than 1,500 exhibitors side-by-side.

TABLE OF CONTENTS

General Information	4-5
Exhibitor List	6-11
Special Events	12-14
Tuesday Keynote:	
FABx Tech Talks.	12
Expert Panel Presentation: Innovate, Accelerate and Advance Manufacturing.	12
Industry Night at Mercedes-Benz Stadium	
Women of FABTECH	
Breakfast with Tech Tour	13
Wednesday Keynote:	
Kyle Petty, NASCAR Icon and Philanthropist.	13
State of the Industry.	13
RUN4MFG 5K	13
Thursday Keynote:	
Make Way for Gen Z!	14
Expert Panel Presentation: Manufacturing and the New Generation Workforce	14
Knowledge Bar:	
Ask the Experts.	14
Smart Manufacturing Hub .14	
About the Program	16
Schedule-at-a-Glance	17-19
Pricing Information	20
Education Program	
Tracks	21-45
3D/Additive Manufacturing	21
Automation	21-22
Cutting/Laser.	23
Finishing	24-25
Forming & Fabricating.	26-27
Lean.	27
Management	28
Marketing & Sales Tools.	29
Smart Manufacturing	30
Stamping	31
Welding Fabrication.	32
Workforce Development	33-34
Welding.	36-45
Seminars RWMA School Career Path Workshops Professional Program Education Sessions AWS Society Events	
Hotel & Travel	46

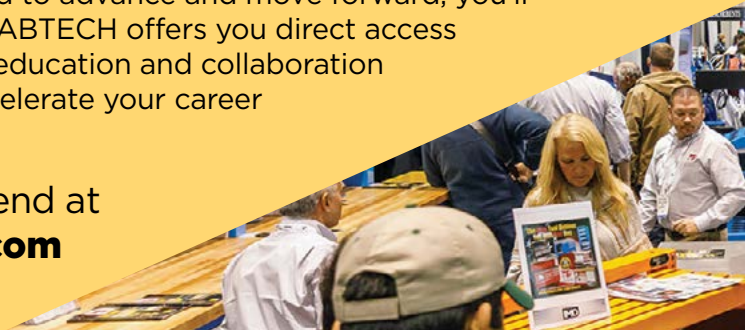
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ACCELERATE YOUR CAREER AND YOUR BUSINESS AT FABTECH 2018

Whatever you need to advance and move forward, you'll find it here. Only FABTECH offers you direct access to the innovation, education and collaboration you can use to accelerate your career and your business.

Register to attend at
fabtechexpo.com



FABTECH 2018 FEATURES



1,500
Exhibitors



130+
Educational
Sessions



650,000
Net Square
Feet of
Exhibits



500+
New Products
& Live Equipment
Demonstrations



Daily Keynote
Presentations
and Panel
Discussions



35,000
Attendees

SHOW HOURS

Tuesday, Nov. 6

10:00 AM – 6:00 PM

Wednesday, Nov. 7

9:00 AM – 5:00 PM

Thursday, Nov. 8

9:00 AM – 4:00 PM

REGISTER TO ATTEND

Avoid lines onsite and a \$50 admission fee by registering today online at **fabtechexpo.com**.

SHOW ADMISSION

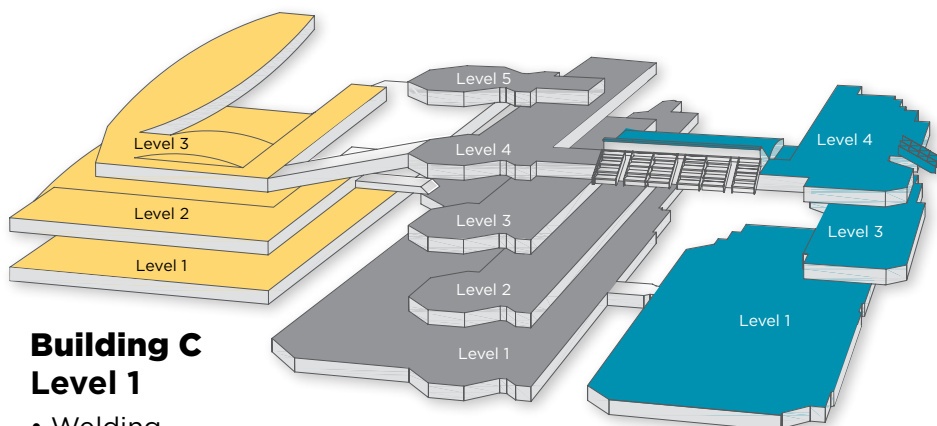
Exhibit-only registration is **FREE** through November 2, 2018. Beginning November 3, the cost to attend the exhibits is \$50. AWS, FMA, SME, PMA and CCAI members may always attend the exhibits for FREE with proof of membership.

TECHNOLOGY ON DISPLAY

- 3D/additive manufacturing
- arc welding
- assembly
- bending & forming
- brazing & soldering
- business services
- coil processing
- cutting
- fastening & joining
- finishing/paint & powder coating
- finishing/plating
- gases & gas equipment
- hydroforming
- inspection & testing
- job shop/contract manufacturing
- lasers
- lubrication
- maintenance & repair
- material handling
- metal suppliers



GEORGIA WORLD CONGRESS CENTER



Building C Level 1

- Welding
- Tube & Pipe

Building B Level 1

- Fabricating
- Finishing
- 3D/Additive Manufacturing

Building A Level 1

- METALFORM
- Fabricating
- Welding

- plate & structural fabricating
- press brakes
- punching
- resistance welding
- robotics
- roll forming

- safety & environmental
- saws
- software/machine controls
- stamping
- thermal spraying
- tool & die
- tooling

- tube & pipe fabricating or welding
- tube & pipe producing
- waterjet
- welding consumables
- welding machines

EXPLORE EQUIPMENT AND SERVICES FROM LEADING COMPANIES

Exhibitor list by pavilion as of 07/02/18. Visit fabtechexpo.com for a complete exhibitor list.

3D/ADDITIVE MANUFACTURING

3D Metal Printing Magazine
3D Systems
Additive Manufacturing
Advanced RP
Alpha Laser - US
Cincinnati Inc
Creaform
Desktop Metal
DisTech Automation Inc
EnvisionTEC Inc
Fusion3
Laserline Inc
Markforged
Matterhackers
MicroCare Corporation
Nanogrande Inc
Novatech
Oak Ridge National Laboratory
Prototyping Solutions
Protolabs
Renishaw Inc
Shining 3d
SimuTech Group
SPI Lasers
Stacker LLC
Stratasys
SWECO
TriMech
TRUMPF Inc
TUV Rheinland
Ultimaker
Venton
Wisconsin Precision Casting Corp
Xact Metal
Xometry

FINISHING

1st Source Products Inc/
Tycon Bearings
ABL Technic NA
Accudraft Spray Booths
ACT Test Panels LLC
AFC Finishing Systems
Air Power Inc
AkzoNobel Powder Coatings
Alabama Washer & Oven Co
Alconox
Alexandria Metal Finishers
Alliance Manufacturing Inc
Amberica Inc
AMOVA SARL
APEL International
Argon Masking Corp
ASCO Carbon Dioxide Inc
Assured Testing Services
Axalta Coating Systems
AZZ Metal Coatings
Baril Coatings USA
BASF Corp
BCI Surface Technologies
Bulk Chemicals Inc
BEKO Technologies
Bex Spray Nozzles
Blast Cleaning Technologies
Blast Services Inc
BlastOne
Burleigh Industries
Calvary Industries Inc
Canadian Finishing & Coatings Manufacturing
Caplugs
Carlisle Fluid Technologies
Castrol
Catalytic Industrial Systems
Chemetall US Inc
Chemical Coaters Assoc International
Chemtec North America LLC
Clean Air Technology Solutions
ClearClad Coatings LLC
Clemco Industries Corp
Col-Met Engineered Finishing Solutions
Columbus Industries Inc
Combustion and Systems Inc
Coral Chemical Co
CPR Systems
Custom Fabricating & Supplies
D & B Plating
Decoral System USA Corp
Defelsko Corp
Delfin Industrial
Diamond H2O
Dinamec Systems
DMP Corporation
DuBois Chemicals Inc
Duroair Technologies Inc
Dürr Systems, Inc
DV Systems Inc
Dynabrade Inc
Echo Engineering
Eisenmann Corp
Elcometer Inc
EnviroServe Chemicals Inc
EPSI Engineered Products & Services Inc
Ervin Industries
ESMA Incorporated
Euroimpianti Srl
Eurosider SAS Di Milli Ottovio
FAMIS Incorporated
Fandeli Coated Abrasives
FANUC America Corp
Fischer Technology Inc
Flex Trim USA
Fluke Process Instruments
Fostoria Process Equipment Div of TPI Corp
Frost Inc
GAT Finishing Systems
Gema USA Inc
General Fabrications Corp
George Koch Sons LLC
Global Finishing Solutions
GMA Industries Inc
Goff Inc
GPA INNOVA-DLyte
Graco Inc
Graphic Products
HafcoVac
Hammond Roto-Finish
Hedson Technologies North America
Henkel Corp
Hentzen Coatings Inc
Heraeus Noblelight LLC
Herr Industrial Inc
Houghton International Inc
Hubbard-Hall Inc
IFS Coatings Inc
Infiniti Coating Solutions
INTEK Corporation
IntelliFinishing
International Thermal Systems LLC
INTERTEK
Iowa Area Development Group
IST America
IST International Surface Technologies
IXS Coatings
Jackson Oven Supply
Jamestown Coating Technologies
Jervis B Webb Co
Keyland Polymer Material Sciences LLC
Klinger Paint Co
LDPI Inc
LPI Inc
LS Industries Inc
Magic Rack/Production Plus Corp
MAXAIR Systems
Midwest Finishing Systems
Mighty Hook Inc
Mighty Lube Systematic Lubrication Inc
ML Filters
Mode Kartela Boya Ltd Stl
NikoTrack LLC
Nordic Air Filtration
Nordson Corp
Novacel
Omnirobotic
Parker Ionics

FINISHING

Patriot Metal Finishing Systems Inc
Peening Technologies
PEM Inc
Pneu-Mech Systems Mfg
Pollution Control Products Co
Polymer Molding Inc
Porcelain Enamel Institute Inc
Powder Coated Tough
Powder Coating
Powder Coating Institute
PPG
Precision Color
Products Finishing Magazine
Prona Tools Inc
Raptor Blasting Systems
Richards-Wilcox Conveyor
Rohner
RollSeal Inc
S.E.F. ITALIA SRL
Sames Kremlin
Sata Spray Equipment
Scheugenpflug Inc
Selas Heat Technology
Sherwin-Williams
sia Abrasives
Sigma Abrasives North America
Southern Equipment & Services
Southern Fluid Systems
Spray Systems Inc
Spray Tech/Junair
Spraying Systems Co
Sprimag Automated Coating Systems
SUNKISS-EPI Inc
System Technologies
Tanis Inc
TCI Powder Coatings
Technotrans America
The Electrocoat Association
Therma-Tron-X Inc
Transmet Corp
Trimac Industrial Systems
UniCure Spraybooths
Uni-Spray Systems Inc
V&S Galvanizing LLC
Valmont Coatings
Vapor Technologies
Viking Blast & Wash Systems
Vitracat America Inc
voestalpine eifeler coatings
Vogel Industrial Coatings
VULKAN Blast Shot
W Abrasives

FINISHING

Wagner Systems Inc
Washington Mills Ceramics
Webb-Stiles Co

FORMING & FABRICATING

1st Source Products Inc
3D Fab Light Inc
3DCap Custom Headwear
Accurate Technology Inc
Accupress
Adira
Advance Cutting Systems
Advanced Process Optimization Inc
AIM Inc
Ajan Elektronik Servis Sanayi Ve Ticaret Ltd St
AKS Cutting Systems Inc
Akyapak Makina San Ve Tic Ltd STI
Alabama Economic Development (NAIDA)
Al-Fe Heat Treating Inc
Alliance For American Manufacturing
Alliance Machine and Engraving LLC
Allied Machine & Engineering
Allied Powers LLC
Allor Manufacturing Inc/
Plesh Industries
Allstrap Steel & Poly Strapping Systems
Alma CAM USA LLC
Almetals Inc
Alpha Precision Group
Alternative Parts Inc
AM Machinery Sales Inc
Amada America Inc
Ambrell Induction Heating Solutions
American Cutting Edge
American Photonics
American Punch Co
AMS Controls Inc
ANDRITZ Herr-Voss Stamco Inc
Anhui Huatian Mechanic Co Ltd
AP Lazer
Apex Machine Group
Aptek Inc
Armstrong Kover Kwick Inc
Arro-Mark Co LLC
Arrowhead Manufacturers & Fabricators Assoc
ASKO Inc
Athader
Atlanta Drive Systems Inc
Autodesk Inc

FORMING & FABRICATING

Automated Layout Technology
Automec Inc
AVEVA Inc
AXOOM GmbH
Barton International
Beagle I Inc
Beck Automation
Beckhoff Automation
Behringer Saws Inc
Beta Tools USA
Betenbender Manufacturing Inc
Big Ass Fans
Big Steel Rack
Binder USA LP
Black Hills Corporation
Blastec Inc
Blue Water Engineering Pty Ltd
Boeck GmbH
BOFA Americas Inc
BOLDRINI
Bonak CPL SL
Bosch Rexroth Corp
Boschert Precision Machinery Inc
Boss Laser
Boss Manufacturing Co
Bowlin Manufacturing Inc
Bradbury Group Australia
Bradbury Group PuMa
Bradbury Metal Tile Roofing Solutions
Braner USA Inc
BTM Company LLC
Buds Equipment Sales
Burghardt + Schmidt Group
Burnco Mfg Inc
Burr King Manufacturing Co
Bushman Equipment
Butch Bliss
BUWW Coverings Inc
Bystronic Inc
C2AE Architecture + Engineering
Cambco
Cameron Mfg and Design
Camlock Systems Inc
Capital One
Carell Corporation
Carmel Group Inc
CH Steel Solutions Inc
Chambrelan SAS
Changzhou City Wansui Tools Works
Chase Cooling Systems
Chicago Slitter
CIDAN Machinery Inc
Cincinnati Inc
Cleveland Punch & Die Co
Cleveland Steel Tool Co
Closed Loop Recycling
CMF

FORMING & FABRICATING

CMS North America Inc
Coherent Inc
COLE-TUVE Inc
Comblift USA
COMEQ Inc
Control Laser Corp
Control Works Inc
Controlled Automation Inc
Cortec Corp
Cosen Saws
Costa Sanders
Cowles Tool Co
CQT Kennedy LLC dba Kennedy Manufacturing
CTD Machines
Custom Quality Manufacturing
Custom Rollforming Corp
Cy Laser America
D Cooper Works
Daito Seiki Co Ltd
Dake Corporation
Dalmec Inc
Darex LLC
DAVI Inc
DCM Tech Inc
Dees Hydraulic Industrial Co Ltd
DeeTee Industries Ltd
Dener Makina San Tic Ltd Sti
Design 2 Part
Design Storage & Handling Inc
Diamond Saw Works Inc
Dimco Coil Technologies Inc
Dirinler Makina AS
Diversified Transportation Services
DMC Metal Finishing
DoALL Sawing Products
Donaldson Torit - Donaldson Company Inc
Dongguan Glorystar Laser Technology Co Ltd
Dongguan Maozhong Precision Hardware Co Ltd
Doring Cold Saws
Doucet Machineries Inc
Dr. Shrink Inc
DropsA USA
Dude Solutions
Duo Robotic Solutions
Durma North America Inc/ Durmazlar/Durma
Dynex/Rivett Inc
Eagle Bending Machines Inc
Eastern Metal Supply
Ebbco Inc
ECI Software Solutions
Econco/CPI
EHRT North America
ELG Metals Inc
Elumatec North America Inc

FORMING & FABRICATING

Emmegi USA Inc
Eos Business Surveillance Solutions
Epicor Software Corp
Epilog Laser Corp
EquipNet Inc
Ercolina - CML USA Inc
Ergo Advantage
Ergotronix
ERIEZ
ErmaKsan Makina San Ve Tic. AS
ERP & Scheduling Software
Euroboor USA
ExhibitForce
EXOR America
Eyeconic.TV
Fab Line Machinery Llc
Fab Supply Inc
Fabricating & Metalworking Magazine
Fabricators & Manufacturers Assoc Intl (FMA)
FabSuite LLC
Faccin USA Inc
Fagor Automation Corp
Fairmont Concepts
Family Business USA
FARO Technologies Inc
Fehr Warehouse Solutions Inc
Felton Inc
FF Journal/Modern Metals
Ficep Corporation
Fladder-Hansen & Hundebol Inc
FlexArm Inc
Flow International Corp
Fluid Chillers Inc
Fluke Corporation
FomUSA
Formdrill USA Inc
Formtek Inc
Foshan Beyond Laser Technology Co Ltd
Fromm Packaging Systems
Fujitsu Glovia Inc
Gasparini SpA
Gauer Metal Products Inc
GE Mathis Co
GenAlpha Technologies Inc
Genius ERP
Glen Dimplex Thermal Solutions
Global Shop Solutions
GMA Garnet
GMC Machine Tools Corp
Gorbel Inc
Greenfield Industries Inc
Guangzhou Kklaser Co Ltd
H2O JET Inc
Haas Automation Inc
Haco-Atlantic Inc
Haeger Inc
HAEUSLER AG Duggingen

FORMING & FABRICATING

Hafendorfer Machine Inc
Hangzhou Grand Imp & Exp Co Ltd
Hangzhou Xiangsheng Abrasive Machine Manufacturing Co/ AME
Hans Weber Sales and Service Corp
Harmonic Drive LLC
Hayes International
Heck Industries
HEM Inc
Hexagon Manufacturing Intelligence
Hiwin Corporation
Hornet Cutting Systems
Hougen Manufacturing Inc
HUB Industrial
Husky Rack & Wire
Hyd-Mech Group Ltd
Hydren Systems LLC
Hypertherm CAM
Hypertherm Inc
Hyster Co
igus Inc
II-VI INFRARED
IMSM Inc
Industrial Info Resources
Industrial Machine Trader
Industrial Machinery Digest
Industrial Magnetics Inc
InfoSight Corp
Innovative Components
Inovatech Engineering
Into-N2 LLC
ISB
ITEQ Vietnam Co Ltd
Jepson Power Inc
JETCAM-NestONE Solutions
Jiangsu SUNSN Precision Tool Technology Co Ltd
Jinan Bodor CNC Machine Co Ltd
JMR Industrial
Johnson Bros Roll Forming Co
JPW Industries
JS Products
JWF Technologies
KAAST Machine Tools Inc
Kaka Industrial LLC
Kasto Inc
KB Duct - A CECO ENVIRONMENTAL COMPANY
KD Capital Equipment LLC
Keller USA Inc
Ken Bergman & Assoc LLC
Kennametal Inc
Kern Laser Systems
KeyedIn
Keyence Corp of America
Kinetic Cutting Systems Inc
Kipp Inc

FORMING & FABRICATING

KMT Waterjet Systems Inc
Kolev Engineering Inc
Komatsu America Industries LLC
LaCroix Precision Optics
Laguna Tools
Lantek Sheet Metal Solutions
LAP Laser
Laser Research Optics
LaserStar Technologies Corp
Laservision USA
Lazer Safe Pty Ltd
Leasing Resources Inc
LENOX®
Levitat Technologies Inc
Lincoln Electric Co
Linemaster Switch Corp
LISSMAC Corp
LT Ultra Precision Optics
Lumentum
LVD Strippit
Machine Concepts Inc
MachineMetrics
Machinery Dealers National Assoc
Made-In-China.Com
Manufacturing Solutions
Marion Die & Fixture Inc
Marvel Manufacturing Co
Master Magnetics
Master Roll Manufacturing
Mate Precision Tooling
Mayer USA Inc
Mazak Optonics Corp
MB Metal Technologies LLC
MC Machinery Systems Inc
MCR Safety
MD Metals
MECCO
Meltric Corp
Memex Inc
Messer Cutting Systems
Metal Supermarkets Service Company Inc
MetalFinish LLC
MetalForming Inc
Metalix CAD/CAM Ltd
MetaMation Inc
Metform International Ltd
Metsaw Systems Inc
Metreel Inc
MG Sri
Microsoft Dynamics 365 - Turnkey Technologies Inc
Midwest Automation
Midwest Tool Inc
MIE Solutions Inc
Modula
MPI Magnetic Products Inc
MultiCam Inc
Murata Machinery USA Inc

FORMING & FABRICATING

MVD Makina Sanayi A.S.
 Nabtesco Motion Control Inc
 Nadella Inc
 Nano Purification Solutions
 Nantong Reliant Trading Co Ltd
 Neugart USA Corp
 New London Engineering
 Newport Corp
 Nikola Labs
 Nitto Kohki USA Inc
 nLIGHT Inc
 Nordfab Ducting
 Norgren Automation Solutions LLC
 Norlok Technology Inc
 Nucor Buildings Group
 Nucor Grating
 Nukon USA
 Oasis Scientific Inc
 Ocean Machinery Inc
 Oerlikon Metco (US) Inc
 Ohio Laser LLC
 OMAX Corp
 OMCO
 OmegaCube Technologies
 Oncor
 Orion Machinery North America Inc
 Pacific Press Technologies
 Packsize International LLC
 Palmer Associates Inc
 Pangborn
 Pannier Corp
 Paperboard Packaging Solutions
 Paper-Less LLC
 Park Industries
 Parker Hannifin
 Pat Mooney Saws
 Patterson Fan Co
 Peak Industrial
 Peddinghaus Corp
 Pensa Labs
 PEP Technology
 Perfection Global LLC
 Peter Prinzing GmbH
 Philpott Rubber/Lankhorst Mouldings
 Phoenix Metals Co
 Piranha
 Pivatic Oy
 Polyurethane Products Corp
 Precision Saws Inc
 Precitec Inc
 Preco Inc
 Premier Thermal Solutions
 Prescor LLC
 Press Brake Safety
 Presto ECOA
 Prima Power North America Inc
 Project Tool & Die Inc
 Prototyping Solutions

FORMING & FABRICATING

Onect LLC
 Quantum Machinery Group
 R&M Manufacturing Co LLC
 Radan
 Radian Laser Systems
 RAS Systems LLC
 RDI Laser Blanking Systems
 Red Bud Industries
 Replacement Brush Tables
 Revolution Machine Tools
 Rhino Cutting Systems
 Rice Lake Weighing Systems
 Richardson Electronics Ltd
 Rigaku Analytical Devices
 RIMCO Rotator
 Rocklin Manufacturing Co
 Rolled Alloys
 Rollieri USA
 Rollomatic Inc
 Rose Graphix Inc
 ROUND0
 Rousseau Metal Inc
 RWM Casters Co
 Ryerson
 SafanDarley BV
 Sahajanand Laser Technology LTD
 Salvagnini America Inc
 Samco Machinery Ltd
 Sandmeyer Steel Co
 Sawblade.Com
 SB Whistler & Sons Inc
 Schelling America Inc
 Schmalz Inc
 Schneeberger Inc
 Schneider Electric
 Scotchman Industries Inc
 SDS/2
 Sea Gate International Inc
 Senfeng CNC & Laser Technology USA Inc
 Service Lamp Corp
 Shanghai Sheetwell Metal Manufacture Co Ltd
 Shanghai Shuheng Cutlery & Mould Manufacturing Co Ltd
 Shiv OM Brass Industry
 ShopBot Tools Inc
 ShopData Systems Inc
 Shoptech
 SIC Marking USA Inc
 SigmaTEK Systems LLC
 signode
 Sinto Surface Treatment
 Slatpro LLC
 SMA Sri
 Smart Manufacturing Hub
 SME
 Snap On Industrial
 Soitaab USA Inc
 Spanco Inc

FORMING & FABRICATING

SSC Controls Co
 SSI Schaefer
 Stainless Shapes Inc
 Stainless Structurals LLC
 Starrett Company
 Staub Manufacturing Solutions
 Steel King Industries Inc
 Steel Storage Systems Inc
 Stop-Painting.com
 Striker Systems
 STRUMIS LLC
 SUNS International LLC
 Surface Armor LLC
 SYSPRO ERP Software
 TAB Industries LLC
 Tapeswitch Corporation
 Team Texas
 TECHNI Waterjet
 Technical Translation Services
 The Bradbury Group
 The Fabricator Magazine
 The M.K. Morse Company
 Three D Metals Inc
 Tie Down Engineering
 TigerStop LLC
 TIGER-VAC USA INC
 Timesavers LLC
 Tinius Olsen
 Tormach LLC
 Travelers Indemnity Company
 Trilogi Machinery Inc
 Trimble Solutions USA Inc
 Trim-Lok
 TRUMPF Inc
 TSI Inc
 Tsune America LLC
 Tulip Interfaces Inc
 TW Metals LLC
 TYKMA ElectroX
 Ungerer Technology GmbH
 UniPunch Products Inc
 United Lens Co
 UP! LLC
 Urrea Professional Tools
 Ursviken Inc
 US Industrial Machinery Co
 Verisurf Software Inc
 Virtek Vision International
 VKS - Visual Knowledge Share
 Voortman USA
 VyTek
 Walker Magnetics
 WARDJet Inc
 Water Jet Sweden AB
 Waterjet Warehouse LLC
 Weil Engineering North America
 Weima America Inc
 Welser Inc
 West Warwick Welding Co
 Wila USA

FORMING & FABRICATING

Wilson Tool International
 WM Caster
 Workshops For Warriors
 Wuko Inc
 Wysong Parts & Service
 Xinxiang Tianfeng Machinery Manufacture Co Ltd
 Yarde Metals Inc
 YESTOOL / Aloris USA
METALFORM
 Accurate Die Design Software Inc/Logopress3
 Agathon Machine Tools Inc
 AIDA-America Corp
 Alma Machinery Co
 Almco Inc
 Alro Steel Corp
 AP&T North America Inc
 Apex Dynamics USA
 ART Metals Group
 ASC Machine Tools Inc
 Associated Spring Raymond
 Atlas Machine & Supply Inc
 AutoForm Engineering USA Inc
 Automated Tapping Systems
 Azimuth Machinery
 Bad Dog Tools
 Balluff Inc
 Beckwood Press Co
 Berg & Co GmbH Spanntechnik
 Bestar LLC
 BesTech Tool Corp
 Bihler 4Slide-Nc
 Brown Boggs Machine Co
 Bruderer Machinery Inc
 BTD Tool & Die
 Century Fasteners Corp
 CIECO Inc
 Clairon Metals Corp
 COE Press Equipment Corporation
 Colt Automation LTD
 Concraft Holding Co Ltd
 Dallas Industries Inc
 DAYTON Lamina Corporation
 DDI Inc
 Delta Computer Systems Inc
 Delta Industrial
 DESCH Canada Ltd
 DESTACO
 Die Cad Group Inc
 DieTronic
 Dixie Industrial Finishing Co Inc
 Dongguan Blacksmith Tool Co Ltd
 Dongguan Changhong Metal Technology Co LTD
 Dongguan Gooming Mechanical Co Ltd

METALFORM

Dongguan Lelin Tilledtek Metal Technology Co Ltd
 Dongguan Shuang Shun Precision Mold Co Ltd
 Dongguan SS JMP Tooling Co Ltd
 Dongguan SYH Tooling Co Ltd
 Dongguan Tai Qun Hardware Technology Ltd
 Dongguan Vision Tool & Mould Co Ltd
 Dongguan Zerostart-tool Co Ltd
 DOP Precision Tool & Die
 DTC Products Inc
 Dubuque Stamping & Mfg Inc
 Durable Superior Casters
 Eagle Metals
 Eagle Press & Equipment Co Ltd
 EAS Mold & Die Change Systems Inc
 Ebway LLC
 EIGEN
 Elizabeth Carbide Components
 Enprotech Industrial Technologies
 Erickson Metals Corp
 ESI North America
 Excelsior Hardware & Plastic Co Ltd
 F&G Tool and Die Co
 Fagor Arrasate
 Falcon Tool Company
 Feed Lease Corp
 Fibro Inc
 Fidelity Inspection Fixture Manufacture Co Ltd
 FluidForming Americas
 Fontijne Grotnes Inc
 FORMTEK-ME
 Fuchs Lubricants Co
 GH Tool and Die Co Ltd
 Gibbs
 Goanwin USA Inc
 Green Valley Manufacturing Inc
 Greenerd Press & Machine Company Inc
 Gruber Tool & Die Inc
 Guangdong TopZone Tooling Co Ltd
 Guangzhou Rainbow Metal Spring Co Ltd
 Güdel
 Helm Instrument Co Inc
 Hilma Div Carr Lane Roemheld
 Hitachi Metals America
 Hong Kai Precision Metal Stamping Tool and Product Co LTD
 Hutchison Tool Sales Co
 IHI Ionbond Inc
 Industrial Innovations Inc
 IQMS
 Jarvis Cutting Tools

METALFORM

JD Norman Industries
JET-SET
Ji' An RuiPengFei Precision Technology Co Ltd
Jiangsu Bojun Industrial Technology Co Ltd
JIER North America
JIT Automation Inc
J-Tech
Kaeser Compressors Inc
Komatsu America Industries LLC
Kosmek USA
Kunshan Eagle Precision Tooling Co Ltd
Larson Tool & Stamping
Latrobe Specialty Metals Distribution
Lee Contracting Inc
Linco Precision Industrial Co Ltd
Linear Transfer Automation Inc
Link Electric & Safety Control
Logopress3/Accurate Die Design Software Inc
LSP Industries Inc
Lucky Harvest Co Ltd
Macrodyne Technologies Inc
Magnum Press Inc
Mayfran International Inc
Meusburger US Inc
Midwest Industrial Metals
MJC Engineering & Technology Inc
Moeller Precision Tool
Mollificio Bordignon srl
MPP
Multipress Inc
Neff Press Inc
Nidec Minster Corp
NKS LLC
NN Inc Precision Products Group
NOXON Automation USA LLC
Oneda Corporation
Oriimec Corporation of America
Orttech Inc
Overton Industries
P/A Industries Inc
Pacesetter Systems
Pascal Engineering Inc
Paulo
Pax Products Inc
Penn United Technologies Inc
Plex Systems
PMF Industries Inc
Porter Precision Products
Pottiez America LP
Precious Plate Inc
Precision Metalforming Association
Precision Punch Corp

METALFORM

Precision Steel Warehouse Inc
Pressroom Electronics Inc
PrimeTest Automation Inc
Pronic Inc
Qingdao Merid Machinery Co Ltd
Quintus Technologies AB
Ramcel Precision Stamping and Manufacturing LLC
Raziol Zibulla & Sohn GmbH
Ready Technology Inc
Right Corner of Texas
Rigidized Metals Corp
Rock Valley Oil & Chemical Co Inc
Rockford Systems LLC
Rolled Metal Products
Roller Die + Forming Co
Ross Controls
RUF Briquetting Systems
Samson Roll Formed Products Co
Sander Automation Corp
Sangiaco Presses Americas LLC
Sankyo Automation
Sasahara Kanagata Co Ltd
Scientific Forming Technologies Corp
SelfLube
Serapid Inc
SEY America Inc
Shenzhen HuaYuanDa Technology Co Ltd
Shenzhen Powstar Technology Ltd
Shenzhen Yalu Industry Co LTD
Shenzhen Zhuotai Precision Tooling
ShopEdge Software Inc
SIMPAC America Co Ltd
SME
Solar Atmospheres
Soph Inc
Southern Machinery Repair Inc
Special Springs LLC
Stamtec Inc
Superior Die Set Corp
TDS Automation - A Doerfer Company
The Heim Group
Theta TTS Inc
Toledo Integrated Systems
Torque Technologies Inc
Torspec International Inc
Tower Metalworking Fluids
TOX Pressotechnik LLC
Trans-Matic
Tribco Inc
Triple Crown Products
T-Sim Solutions

METALFORM

TST Tooling Software Technology LLC
TURCK Inc
Uddeholm USA
Uelner Precision Tools & Dies
Ulbrich Stainless Steels & Special Metals Inc
Unico Inc
Unisorb Installation Technologies
Unist Inc
United Aluminum Corp
United Machine Corp
United Performance Metals
Versatility Professional Tool Storage LLC
Vibro/Dynamics LLC
Victory Tool
Vidir
Voith Turbo Inc
Wilson Tool International
Wintriss Controls Group LLC
WorkWise Software
World Precise Machinery Co Ltd
Wuxi Minghao Automotive Parts Co Ltd
Xinyongxu Metal & Die (Shenzhen) Co Ltd
xTuple — Open Source ERP+CRM + Web Portal
Yih Shen Machinery Co Ltd
Yong Da Precision Mould (Dongguan) Co Ltd
Zapp Precision Strip
Zerust Corrosion Solutions
Zwick USA

TUBE & PIPE

5 Star Engineering and Maintenance
Accurex Measurement Inc
Acme Saw Plus Div Tubex Technology Machinery
Addition Manufacturing Technologies
Advanced Tubular Technologies Inc
Ajax Tocco Magnethermic Corp
Alpine Bender Machinery
Bend Tech
BLM Group USA Corp
CEIA USA Induction Heating Systems
Chang Yee Steel Co Ltd
Chiyoda Kogyo-Maruka USA
Clark Fixture Technologies
Comblift USA
Comco USA Inc
Cornerstone Capital Partners
Creative Safety Supply
Crippa SPA
Crum Manufacturing Inc

TUBE & PIPE

Current Tech
Electrex Industrial Solutions
ESCO Tool Co
FD Machinery
Fenn
FIT RITE Systems LLC
G.B.C. Industrial Tools S.p.A.
Gem Tool Corporation
George A Mitchell Co
GFU Maschinenbau GmbH
GH Induction Atmospheres LLC
Guild International
Han Jie Machinery Co Ltd
Hangzhou Wagen Precision Tooling Co Ltd
HGG Profiling Equipment BV
Horn Machine Tools Inc
Huth Ben Pearson International LLC
Industrial Solutions & Innovation LLC
Innerspec Technologies
Innovative Tube Equipment Corp
INNOVO Corp
Inserpetrol LLC
International Tube Association
IP Automation
J&S Machine Inc
Kent Corp
Krais Tube Expanders
Lillbacka USA
LINSINGER
Manchester Tool & Die Inc
Matter Srl
Metronor Inc
Mill Masters
Nantong Reliant Trading Co Ltd
New-Form Tools
Numalliance Inc
OMCG Inc
OMNI-X USA
Overton Industries
Passline Performance
PHI
Pillar Induction
Pines Engineering
Proto-1 Manufacturing
Pypeserver Inc
Quaker Chemical Corporation
REA JET US
Revolution Machine Tools
RF System Lab
Roll Machining Technologies & Solutions
Saar Hartmetall USA LLC
SAET Emmedi
Schwarze-Robitec GmbH

TUBE & PIPE

Shaw Stainless & Alloy
Sonha SSP Vietnam Sole Member Co Ltd
T&H Lemont
T-Drill Industries Inc
Tenryu America Inc
Thermatool Corp
Thermo Fisher Scientific
Tools for Bending
Transflui Maschinenbau GmbH
TRUMPF Inc
Tube & Pipe Technology Magazine
Tube Bending Concepts Inc
Tube Form Solutions
Ultraflex Power Technologies Corp
UniPunch Products Inc
Unison LTD
Universal Controls Group
Universal Tool & Engineering
Universal Tube Rollform Equipment Corp
Vulcan Tool Corp
WAFIOS Machinery Corp
Wauseon Machine & Manufacturing Inc
Winton Machine Company
World Machinery & Saw Inc
Yulcon Korea & Mexico

WELDING

3M
ABB Inc
Abicor Binzel
Abracol North America Corp
Accuracy Machine
Ace Industrial Products
Advantage Materials Inc
AGT Robotics
Aimcham Abrasives
Aimtek Inc
Air Cleaning Specialists Inc
Air Purification Inc
Airgas Inc
Alabama Laser
Allegro Industries
Alliance Laser Sales
Allied Powers LLC
ALM Positioners Inc
ALS Maverick Testing Laboratories Inc
Alumareel
American Society For Nondestructive Testing
American Technical Publishers
American Torch Tip Co Inc

WELDING

American Welding Society
 American Weldquip LLC
 AMET Inc
 Anand Arc Ltd
 Andersen Industries Inc
 ANDRITZ Soutec AG
 Anhui Honyen Robot Co Ltd
 Anthony Welded Products Inc
 Antra Technologies Co Ltd
 Anxin Abrasives Co Ltd
 Aquasol Corp
 Arc Products - A Lincoln Electric Co
 ARC Specialties Inc
 Artotic
 CK WorldWide
 Astro Arc Polysoude Inc
 Astrolite Alloys
 ATI Industrial Automation
 ATOP China Welding Products Co Ltd
 Attollo Lift
 Auburn Manufacturing Inc
 Automatic Welding Wire Company Inc
 Aviva Metals
 AVS Industries LLC
 AWS Bookstore
 AWS Careers in Welding Trailer
 AXXAIR USA
 B&B Pipe & Industrial Tool
 Baoji Taimei New Material Technology Co Ltd
 Becken Technology Development Limited
 Beijing Essen Welding & Cutting Fair
 Beijing Metals & Minerals Corp
 Bernard
 BESSEY Tools North America
 Beveler USA Inc
 Black Stallion
 Bluco Corp
 Blue Demon Welding Products
 Bollhoff USA
 Bonal Technologies Inc
 Bradford Derustit Corp
 Bruker Corporation
 Buffalo Shrink Wrap
 BUG-O Systems
 Burny
 Cambridge Vacuum Engineering
 Capital Machine Technologies Inc
 Capital Weld Cleaners
 Carr Lane
 Manufacturing Co
 CEI Welding Software

WELDING

CENIT North America Inc
 Cerbaco Ltd
 CGW-Camel Grinding Wheels USA
 Changzhou Asia Science & Technology Co Ltd
 Changzhou Shine Welding & Cutting Machinery Co Ltd
 Changzhou Shine Science & Technology Co Ltd
 Changzhou Zhengyang Welding Material Co Ltd
 Chart Inc
 Chicago Pneumatic Tool Co
 Cibo NV
 CK Worldwide
 Clamptek USA Inc
 Clean Air America
 CleanSpace Technology Pty Ltd
 Clearway
 Cloos Robotic Welding Inc
 COB Industries Inc
 Cold Jet
 Coldwater Machine Co
 Computers Unlimited
 Convergent Photonics
 Coral SPA
 Corimpex SRL
 COR-MET INC
 Cougartron Inc
 Coxreels Inc
 CS Unitec Inc
 CVI Technology
 D/F Machine Specialties Inc
 Dakota Ultrasonics
 Dataweld Inc
 Dedeco International Inc
 Dengensha America Corp
 Diagraph MSP an ITW Company
 Diamond Ground Products Inc
 Dino-Lite Scopes (BigC)
 Dinse Inc
 Direct Wire & Cable
 Diversitech
 Drahtwerk Elisental GmbH & Co
 DualDraw LLC
 Dynatorch Inc
 Easom Automation - A Lincoln Electric Co
 EASYKleen Pty Ltd
 Edge Welding Supply
 EH Wachs/Orbitalum
 Eidos Ergonomics
 Ekide SL
 Elcometer Inc

WELDING

eldec LLC
 Electron Beam Technologies Inc
 Ensitech Inc
 ESAB Welding & Cutting Products
 ESTA Extraction USA
 Eurovac
 FANUC America Corp
 Fastenal Company
 Fein Power Tools Inc
 Fenetech
 Ferris State University
 Filter 1
 Fireball Tool
 Fit-up-Gear
 Flame Technologies Inc
 Flange Wizard Inc
 FlashCut CNC
 FlexArm Inc
 Flexovit USA Inc
 FOCUS GmbH
 Forney Industries Inc
 Fronius USA LLC
 Fusion Inc
 G&J Hall Tools Inc
 Ganzhou Hongfei Tungsten & Molybdenum Materials Co LTD
 GAWDA
 GE Schmidt Inc
 Genesis Systems Group
 Genstar Technologies Inc
 Golden Eagle Minmetals (Beijing) Wldg Materials Co
 Goss Inc
 GSM America Inc
 Gudel Inc
 Gullico International
 Hangzhou Xcan Saw Co Ltd
 Hankook Weldtek Co Ltd
 Harbert's Products Inc/ Allied Flux Reclaiming Ltd
 Hardface Technologies by Postle
 Harris Products Group
 Hascor USA Inc
 HBS Stud Welding Partners
 Henan Huamao Metal Materials Co Ltd
 Heron Intelligent Equipment Co Ltd
 Hobart Brothers
 Hobart Institute of Welding Technology
 Huber Supply
 Huys Industries Ltd
 Hypertherm Inc
 IAP Air Products
 Ideal Welding Systems LP

WELDING

igm Robotic Systems Inc
 II-VI HIGHYAG
 Imperial Systems Inc
 International Welding Technologies Inc
 InterTest
 Invaware Corp
 IPG Photonics
 Ironworker Management Progressive Action Cooperative Trust
 IVEC Systems
 JASIC Technologies America Inc
 JAZ USA Inc
 Jiangsu Meixin Optoelectronics Technology Co Ltd
 Jiangxi Guangxin New Material Co Ltd
 Jinan Chpro Commercial Co Ltd
 JLC Electromet Pvt LLC
 John Tillman Co
 Joysun Abrasives Co Ltd
 JR Automation
 Kalas Wire Inc
 Kawasaki Robotics (USA) Inc
 Kayo Products Co Ltd
 KeepTheHeat
 Kemper America Inc
 Kent Stud Welding Co Ltd
 Kistler Cutting and Welding (Kistler GmbH)
 KLINGSPOR Abrasives Inc
 Kobelco Welding of America Inc
 Koike Aronson Inc
 KUKA Robotics Corporation
 LA-CO Industries Inc
 Laizhou Hongyuan Bench Vise
 Manufacture Co Ltd
 Laser Mechanisms Inc
 Laserline Inc
 LeTourneau University
 Lianyungang Orientcraft Abrasives Co Ltd
 Liburdi Automation Inc
 LinAn Da Yang Welding Material Co Ltd
 Lincoln Electric Co
 Luvata Ohio Inc
 Magnatech LLC
 Magnum Reels
 Magswitch Technology Inc
 Manufacturing Solutions Industries Inc
 Matsumoto US Technologies Inc
 Matschek Welding Products Inc

WELDING

MAXAIR Systems
 McDantim Inc
 Mercer Industries
 Meridian Laboratory Inc
 Metabo Corp
 Michigan Pneumatic Tool Inc
 Micro Air
 Midalloy
 Miller Electric Mfg Co
 Millner-Haufen Tool Company
 MITUSA Inc
 MK Products Inc
 Morris Precision Technology Company Limited
 MTA-USA LLC
 Murrplastik Systems Inc
 NASA Technology Transfer Program
 Nasarc Technologies
 Nation Wide Products
 National Standard
 Nederman LLC
 Nelson Stud Welding Inc
 New Fire Co Ltd
 New Spool Srl
 Newland (Tianjin) Welding Material Co Ltd
 Niffisk Inc
 Ningbo Aibo Tools Co Ltd
 Ningbo Jamson Machinery
 Ningbo Kimpin Industrial Pte Ltd
 Ningbo Nisten
 Enterprise Co Ltd
 Ningbo Powerway Alloy Material Co Ltd
 Ningbo Starex Welding & Cutting Tech Technologies
 Ningbo Zehen International Trade Co Ltd
 Nodha Industrial Technology Wuxi Co Ltd
 NOMMA
 Norton | Saint-Gobain
 Novarc Technologies Inc
 NSRW
 Octopuz Inc
 Olympus
 Optrel Inc
 Orbitalum
 Osborn
 OTC DAIHEN Inc
 Otto Arc Systems Inc
 Oxylynce Inc
 Pador Marketing Group
 Panasonic Factory Solutions Company of America

WELDING

Pandjiris Inc
 Parweld Ltd
 PDS Bartech Inc
 Pearl Abrasive Co
 Pemamek LLC
 Pennsylvania College of Technology
 PFERD INC
 Phoenix International Inc
 Plasma Automation, Inc/Vicon Machinery, LLC
 plasmio USA LLC
 Polymet Corp
 Praxair Inc
 Preco Inc
 Preston-Eastin Inc
 Primax Mfg & Trading Inc/Caiman Gloves
 Pro Spot International
 ProArc USA
 proAutomation LLC
 Proceq USA Inc
 Production Products Inc
 PROFAX / LENCO
 PTR-Precision Technologies Inc
 PureFlo
 PushCorp Inc
 PythonX - A Lincoln Electric Co
 Qingdao Kingdom Cheer Industry Co LTD
 Radyne Corp
 Rasco FR
 Ready Robotics
 Resistance Welding Machine & Accessory
 Rex-Cut Abrasives
 Rhodius USA LP / Beveltools
 RIDGID
 Rite Hite Machine Guarding
 Robotic Automation
 Robotmaster
 RoboVent
 RoMan Manufacturing Inc
 RPB Safety LLC
 RWMA - Resistance Welding Manufacturing Alliance
 Saf-T-Cart Inc
 SanRex Corporation
 Scrape-N-Burr
 Seedorff Acme Corp
 Seit Elettronica
 Select Arc Inc
 Servo-Robot Inc
 Shandong Aotai Electric Co Ltd
 Shandong Juli Welding Co LTD
 Shanghai Binic Industrial Co Ltd

WELDING

Shanghai TAYOR Heavy Industry (Group) Co Ltd
 Shenzhen Action Welding Technology Co Ltd
 Shenzhen Donrun Welding Equipment Co Ltd
 Sideros Engineering Srl
 Simufact Engineering
 SMA Abrasives USA LLC
 SMC Corporation of America
 Southern Copper & Supply
 Southern Stud Weld Inc
 SPECTRO Analytical Instruments
 Stahle Cybernetic Technology
 Standard Resistance Welder Co
 Stanley Black & Decker Inc
 Steel Vision Tools
 Steelmax Tools
 Steiner Industries
 Strong Hand Tools
 Strong Hold Products
 STUAA Automation (Qingdao) Co Ltd
 Suhner Industrial Products Inc
 Sumig USA Corp
 Sumner Manufacturing Co
 Sunstone Welders

WELDING

SuperFlash Compressed Gas Equipment
 SureWex
 Surface Engineering Alloy Co
 T. J. Snow Company
 Taizhou Shanda Mechanical & Electrical Technology Co Ltd
 Taylor-Winfield Technologies Inc
 Team Industries Inc
 TEC Welding Products
 Techflex Inc
 Techniweld USA
 TECMEN Electronics Co Ltd
 Tempest Air
 Tennessee Rand Inc - A Lincoln Electric Co
 Tersura Abrasives Co Ltd
 The Plastic Forming Co
 THE ROUCHE CO LLC
 Thermacut Inc
 Tip Tig USA LLC
 Top Cat Air Tools
 Topgas Equipment Company
 Torchmate - A Lincoln Electric Co
 Trafimet Group S.p.a.
 Tregaskiss
 Trendex Information Systems Inc
 Tri Tool Inc

WELDING

TRU-FIT Products
 TRU-Weld
 Trystar Inc
 TURCK Inc
 TWI North America LLC
 Tyrolit Industrial Abrasives
 UltraTech International Inc
 U-Mark Inc
 Uneeda Enterprises Inc
 United Abrasives Inc /SAIT
 Universal Robots USA Inc
 Uniweld Products Inc
 Upstate SC Alliance
 Uweld Technologies Co Ltd
 VDM Metals USA LLC
 VERNON Tool - A Lincoln Electric Co
 Victory Plasma Systems
 Viega
 Vitronic Machine Vision
 Vizient Manufacturing Solutions Inc - A Lincoln Electric Co
 VSM Abrasives Corp
 Walter Surface Technologies
 Washington Alloy Co
 Watts Specialties Inc
 Wayne Trail - A Lincoln Electric Co
 Weifang Forward Welding Materials Co Ltd

WELDING

Weiler Corporation
 Weld Engineering Co
 Weld Pride USA For Weldbrush
 Weld Systems Integrators Inc
 Weld-Aid Products
 Weldas Co LLC
 WeldComputer
 Weldcote Metals
 Welder Training & Testing Institute
 Welders Log
 Welding Alloys USA
 Weldobot Technologies Inc
 Weldsale LLC
 Welker Engineered Products
 Wendt USA LLC
 Wenzhou Xidin Electronics Technology Co Ltd
 West Chester Protective Gear
 Western Enterprises
 Wire Wizard Welding Products (elco Enterprises)
 WireCrafters
 Wisconsin Wire Works Inc
 WITT Gas Controls
 Wolf Robotics LLC - A Lincoln Electric Co
 Worldwel Co Ltd
 Wuhan Temo Welding Consumables Co Ltd

WELDING

Wuhan Welhel Photoelectric Co Ltd
 Wuxi Datang Welding & Cutting Mechanical Equipment Co Ltd
 Wuxi Kenke Heavy Industry Equipment Co Ltd
 Wuxi Welcut Technology Co Ltd
 Wuxi Yincheng Science & Technology Co Ltd
 Wuzhou Ally Protect Co Ltd
 Xiamen Honglu Tungsten Molybdenum Industry Co Ltd
 Xiris Automation Inc
 Yaskawa America Inc
 Yongkang Honcho Precision Machinery Parts Co Ltd
 York Portable Machine Tools
 Zhejiang Changzheng Project Carbon Electrodes Co Ltd
 Zhejiang Jingwei Welding & Cutting Technology Co Ltd
 Zhejiang Poney Electric Co Ltd
 ZJ Industries Inc

FABTECH BLUES, BREWS & BBQ

This unique meeting area located outside between Building B & C, is the perfect place to take a break and make new connections.

Open during show days from 11:00 AM until show close.

Sponsored by: **RoboVent®**



SPECIAL EVENTS ARE FREE AND OPEN TO ALL ATTENDEES UNLESS OTHERWISE NOTED

TUESDAY, NOVEMBER 6

KEYNOTE PRESENTATION

8:45 AM - 10:00 AM

FABx TECH TALKS



Embracing the wildly popular TED-style concept, FABTECH 2018 kicks off with an exciting format for the opening keynote. The FABx Tech Talks will spotlight visionary leaders who will motivate and inspire attendees via short inspirational talks on the topics of transformation, growth, advancement and expansion for the future of manufacturing. Come hear how these leaders are driving innovation to take their businesses to the next level.

EXPERT PANEL PRESENTATION

12:30 PM - 1:30 PM

INNOVATE, ACCELERATE AND ADVANCE MANUFACTURING

Learn how companies are using innovation and advanced technologies to stay at the forefront of manufacturing and how they embrace disruptive technologies to remain competitive and profitable. Our panel of experts will focus on the importance of manufacturing to the economy, jobs, and new manufacturing processes to accelerate innovation for the fourth industrial evolution.

6:30 PM - 8:30 PM

INDUSTRY NIGHT AT MERCEDES-BENZ STADIUM FEATURING LEGENDARY FOOTBALL COACH STEVE SPURRIER



Enjoy an evening of fun, food, drinks and networking during our Industry Night Party at the spectacular Mercedes-Benz Stadium. Located just steps from the Georgia World Congress Center, the Mercedes-Benz Stadium is Atlanta's newest world-class sports and entertainment complex and home to the Atlanta Falcons.

The evening will include exclusive access to the field, on-field activities, stadium tours, and a keynote and meet-and-greet with special guest and legendary football coach Steve Spurrier.

Advance Industry Night ticket price: \$75

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join now: upg.org

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

WOMEN OF FABTECH BREAKFAST



Join us for a networking breakfast celebrating the importance of women in the manufacturing sector. The breakfast will feature Laura Cox Kaplan, founder and host of the popular "She Said, She Said" podcast. Laura will interview BASF's Veronica Braker, VP, Operations Performance Materials North America. The breakfast will conclude with a tech tour on the show floor.

Advance ticket price: \$25

KEYNOTE PRESENTATION

8:30 AM – 9:30 AM

KYLE PETTY



NASCAR Icon and Philanthropist

What a Ride: Life, Family, Community and the Race Track

Kyle Petty is an auto racing icon, a champion of philanthropy and one of the most popular personalities in all of sports. During this presentation, Petty takes audiences on an anecdotal journey through his life as a businessman, philanthropist and as one of NASCAR's most respected drivers. He explores consistently striving for excellence, living up to your promises, teamwork, community and commitment to family.

EXPERT PANEL PRESENTATION

12:30 PM – 1:30 PM

STATE OF THE INDUSTRY

The manufacturing industry is in a constant state of transformation and manufacturing businesses are managing frequent changes in customer needs, handling competitor changing landscapes, and focusing on profit margins and revenue growth. Hear our experts discuss the issues impacting manufacturing including steel and commodity prices in general, chronic labor shortages and global trade.

THURSDAY, NOVEMBER 8

6:30 AM – 8:30 AM

RUN4MFG 5K



Join FABTECH at the 5th RUN4MFG 5K and show your support for the future of manufacturing! Run or walk this 3.1 mile course route through Centennial Olympic Park across from the Georgia World Congress Center. It's a great way to meet up with FABTECH attendees and exhibitors while supporting a worthy cause.

Advance Cost: \$35.00 (includes a RUN4MFG T-shirt)

THURSDAY, NOVEMBER 8**KEYNOTE PRESENTATION****8:30 AM - 9:30 AM****JONAH & DAVID STILLMAN****Best Selling Authors and Generation Experts*****Make Way for Gen Z!***

A new generation is starting to hit our workplace, yet no one is talking about it...until now! Who are Generation Z? What has shaped them? What are their expectations around careers and the workplace? What's it going to take to get this generation in the door, on board, and up to speed? Generation expert David Stillman teams up with his Generation Z son Jonah for this fresh and innovative presentation that will shed light on what makes this newest generation tick.

EXPERT PANEL PRESENTATION**10:30 AM - 11:30 AM****MANUFACTURING AND THE NEW GENERATION WORKFORCE**

It's a fact: Millennials will make up the majority of the workforce in coming years. This lively discussion will bring together a panel of experts who will share a new perspective and help your company understand how to adapt and attract this new generation of employees. Topics covered include best practices in such areas as creating a culture of care, communication, technology, teamwork, and mentoring.

Moderator:

Jonah Stillman
*Gen Z Ambassador
 and Best Selling
 Author*

Panelists:

David Stillman
*Generations Expert
 and Best Selling
 Author*

Jacob Wilson
*CEO, Morrison
 Industries*

Lee Ann (Schwope) Cochran
*VP Sales & Marketing,
 PRADCO*

TUESDAY, NOVEMBER 6 - THURSDAY, NOVEMBER 8**KNOWLEDGE BAR: ASK THE EXPERTS**

The Knowledge Bar, held on the show floor in the 3D/Additive Manufacturing Pavilion, will hold small group sessions that are designed to provide the opportunity to ask questions about your specific 3D/additive manufacturing challenges and get "the scoop" from industry experts. These sessions are presentation-free and all about engaging with knowledgeable people, working through challenges and meeting your specific information needs.

SMART MANUFACTURING HUB

Visit this dynamic area located in the A/B Connector that showcases the industry's most advanced smart technologies. The Smart Manufacturing Hub will feature several advanced manufacturing technologies, including automation, advanced materials, 3D printing, the Industrial Internet of Things (IIoT), 3D scanning, and more. Technical presentations from industry-leading smart technology providers will provide insight on recent developments in this rapidly evolving field.

Sponsored by:

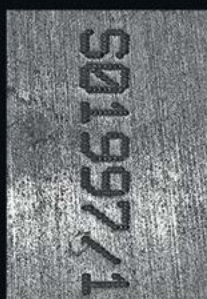


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ABOUT THE EDUCATION PROGRAM

The Fabricators & Manufacturers Association, Int'l (FMA), SME, Precision Metalforming Association (PMA), and Chemical Coaters Association International (CCAI) cosponsor the sessions on 3D/additive manufacturing, automation, cutting/laser, finishing, forming & fabricating, lean, management, marketing & sales tools, smart manufacturing, stamping, welding fabrication, and workforce development. All sessions are two hours in length, offering practical knowledge you can use right away. Sessions with Tech Tours combine classroom instruction and expert-led guided tours on the show floor to see technology operating in designated booths.

The American Welding Society (AWS) presents a comprehensive lineup of welding education. Led by the industry's top professionals, programs focus on best practices and new commercial developments in welding. Events include career path workshops, seminars, RWMA Resistance Welding School, professional program, society events, and more.

EXPERIENCE LEVELS

The Schedule-at-a-Glance on the following pages provides a quick reference to all the educational sessions offered at FABTECH 2018. Use the following key to find the education level that meets your needs.

- B Basic** – Recommended for the attendee who is new to the industry or needs a refresher on the topic.
- I Intermediate** – Designed for the attendee who already has a basic understanding of the subject matter.
- A Advanced** – For the attendee with several years of experience who is seeking more in-depth information.

CONTINUING EDUCATION CREDITS

Individuals who attend AWS Education programs are awarded 1 PDH (Professional Development Hour) for each hour of education program attendance. Individuals seeking FMA Recertification Credits will be awarded 2 credits for each conference session attended (forming & fabricating, cutting, or finishing tracks) plus an additional 2 credits for attending the show. Individuals who attend SME education sessions may be eligible to receive 1 credit per hour attended toward their SME-managed recertification requirements.

MEMBERSHIP INFORMATION

Discounted rates for members are available on educational sessions. Interested in becoming a member of AWS, FMA, SME, PMA or CCAI? Find details on each of the cosponsor associations and membership benefits by visiting their websites today!



TECHNOLOGY	8:00 AM – 10:00 AM	10:30 AM – 12:30 PM	1:30 PM – 3:30 PM
3D/ADDITIVE MANUFACTURING	NEW! F10: Revolutionizing 3D Additive Manufacturing I	NEW! F20: Introduction to Additive Manufacturing and 3D Printing B	F30: Fundamentals of 3D Additive Scanning and Imaging I
AUTOMATION	NEW! F11: Robotics and Automated Systems for Joining and Laser Industry 4.0 I	F21: Getting Started with Robotics B	NEW! F31: Automation Software for Fabrication Business I
CUTTING/LASER		NEW! F22: Advanced Fiber Laser Applications & Developments I	F32: Comparative Cutting Systems with Tech Tour B
FINISHING		C20: Building Blocks of Powder Coating B	C30: The ABCs of Infrared B
		C21: Fundamentals of a Successful E-Coat Operation B	NEW! C31: First Things First - Hanging and Masking I
		C22: Pretreatment Challenges I	C32: New or Improve - What's Best for Your System I
FORMING & FABRICATING	F13: Coil Processing: Advancements in Slitting, Leveling and Storage I	NEW! F23: Press Brake Springback Solutions I	F33: Press Brake Safety: ANSI B11.3 Explained I
	F14: Roll Forming: In-Line Punching, Cutoff Dies and Press Tonnage I	F24: Welding Advancements for Tube & Pipe I	F34: Tube & Pipe: Bending I
LEAN	NEW! F15: Lean Principle: Strategic Planning and Organizational Alignment A	NEW! F25: Lean Principle: Developing Your People I	F35: Lean Tools: Value Stream Mapping, Addressing Differences Between Office and Shop Floor I
MANAGEMENT	F16: Fundamentals of Activity-Based Costing & Estimating I	NEW! F26: Rising Above It All: The Art and Science of Organizational Transformation I	NEW! F36: Becoming a Learning Leader and Avoiding the Fatal Flaws of Failure Part I and Part II I
MARKETING & SALES TOOLS		NEW! F27: Increase Your ROI with Digital Marketing for Manufacturers I	NEW! F37: Marketing Bootcamp: Technology, Prospects & Voice of the Customer B
SMART MANUFACTURING		NEW! F28: Roadmap to Smart Manufacturing Transformation I	NEW! F38: Smart Manufacturing Technology & Workforce Ready B
STAMPING		S20: Machine Safety - Safeguarding Overview I	NEW! S30: Machine Safety - Alternative Methods for Applying Hazardous Energy Control I
		S21: Lubrication Technology I	NEW! S31: Sensor Technology - Eliminating Die Crashes I
WELDING FABRICATION		NEW! W20: Welding for Steel and Aluminum Applications I	NEW! W30: Welding for Laser & Cutting Repair Technology I
WORKFORCE DEVELOPMENT	NEW! F19: 8 Elements to Effective Delegation & How to Get More from the People You've Got B	NEW! F29: Innovative Techniques to Manage Significant Improvement and Change Initiatives I	NEW! F39: The Beauty of Being Lost: Make Better Decisions & Lead Change In Your Organization I
WELDING			
SEMINARS	W10: NDT Day		8:00 AM – 5:00 PM
	W13: CWI Part B Hands On Experience - Day 1		8:00 AM – 5:00 PM
	W14: Welding of Stainless Steel - Day 1		8:00 AM – 5:00 PM
CAREER PATH WORKSHOPS	W16: Starting a Welding Inspection Business		10:00 AM – 12:00 PM
	W17: Creating a WPS in 60 Seconds		1:00 PM – 3:00 PM
	W18: Welding Engineers Round Table Discussion		3:00 PM – 5:00 PM
PROFESSIONAL PROGRAM	W23: Session 1: Additive Manufacturing		8:00 AM – 12:00 PM
	Session 2: Modeling and Numerical Analysis I		8:00 AM – 12:00 PM
	Session 3: Welding Metallurgy		8:00 AM – 12:00 PM
	Session 4: Sensing and Control of Welding Processes		2:00 PM – 5:00 PM
	Session 5: Solid-State Processes		2:00 PM – 5:00 PM
	Session 6: Weldability Studies		2:00 PM – 5:00 PM
EDUCATIONAL SESSIONS	W28: National Center for Welding Education and Training, Weld-Ed		10:00 AM – 3:00 PM
RWMA SCHOOL	W22: RWMA Resistance Welding School - Day 1		8:00 AM – 4:15 PM

WEDNESDAY, NOVEMBER 7

SCHEDULE-AT-A-GLANCE

TECHNOLOGY	8:00 AM – 10:00 AM	10:30 AM – 12:30 PM	1:30 PM – 3:30 PM
3/D ADDITIVE MANUFACTURING	NEW! F40: A Guideline to Metal AM - Processes, Design and Applications I	F50: Business Considerations for 3D Additive Technology with Tech Tour B	NEW! F60: 3D Additive Manufacturing Applications for Fabricators I
AUTOMATION	NEW! F41: Integrated Solutions for Industrial Automation I	NEW! F51: 10 Signs Your Business Needs to Replace Its ERP & Leveraging Next Gen Cloud ERP B	NEW! F61: Automated Technology Application and Benefits for Laser and Joining Process I
CUTTING / LASER	AWF100: Laser Welding for Today's Fabricator Workshop I		NEW! F62: Next-Generation Laser Cutting Technology and Future Oxy-Fuel Cutting I
FINISHING	C40: Optimizing Batch Powder Coating Operations I	NEW! C50: Powder Coating and Industry 4.0, Really? A	NEW! C60: Automation - Is It for Everyone? I
	NEW! C41: Blasting Your Way to Success I	C51: Identify and Solve Finishing Defects: See It, Touch It, Fix It I	NEW! C61: Safety - It Works for All of Us I
	C42: Architectural Coatings - Building a Lasting Finish I	NEW! C52: Developing a Liquid Coating Knowledge Base B	NEW! C62: Improving Performance of Pretreatment Processes I
FORMING & FABRICATING	NEW! F43: Sheet Metal: Controlling Costs with Good Design and Equipment Purchases I	F53: Roll Forming: Justification, Basics and Lubricants B	F63: Tube & Pipe: Forming and Lubrication A
	NEW! F44: Coil Processing: Slitting Thin Materials and Laser Blanking I	F54: Effective Safeguarding Risk Assessment B	NEW! F64: Hot Forming with Titanium I
LEAN	F45: Lean Tools: A3 Thinking-Developing People & Solving Problems I	F55: Lean Tools: Flow and Pull Creating Flow in High-Variety Environments I	F65: Lean Principle: Continuous Improvement in Lean Culture B
MANAGEMENT	NEW! F46: Innovation & Business Strategies for Growth! I	NEW! F56: What's Your Business Worth & Patent Rights for Your IP I	F66: Succession Strategies to Protect Your Business! B
MARKETING & SALES TOOLS	NEW! F47: 5 Steps to World-Class Customer Experiences B	NEW! F57: Sales & Marketing Performance Management of People and Systems I	NEW! F67: Actionable Marketing Strategies for Competitive Advantage I
SMART MANUFACTURING	NEW! F48: The Human and Digital Role In The Factory of the Future I		NEW! F68: Actionable Intelligence: Manage Data to Enable Good Decisions A
STAMPING	S40: Sensor Technology - Practical Applications I	S50: Advance Press Room Technology I	NEW! S60: Sensors, Controls and Connectivity I
	S41: Stamping AHSS Materials I	NEW! S51: Solving Progressive Die Problems I	S61: Preventative Maintenance in the Press Room I
WELDING FABRICATION	NEW! W40: Welding of Advanced Specialty Materials I	NEW! W50: Lean & Quality Welding for Smart Manufacturing I	NEW! W60: Fundamentals of Welding Project Success I
WORKFORCE DEVELOPMENT	F49: Manufacturing and the Millennial: How to Attract and Retain Emerging Leaders B	NEW! F59: Accountability, Engagement & A Culture that Rocks I	F69: Accelerating Workforce Performance Through Best Practices in Learning & Development I
WELDING			
SEMINARS	W11: The Why and How of Welding Procedure Specifications 8:00 AM – 5:00 PM W13: CWI Part B Hands-On Experience - Day 2 8:00 AM – 5:00 PM W14: Welding of Stainless Steel - Day 2 8:00 AM – 5:00 PM		
CAREER PATH WORKSHOPS	W19: Getting Started in Underwater Welding 9:00 AM – 11:00 AM W21: Opportunities in Welding 1:00 PM – 2:30 PM		
PROFESSIONAL PROGRAM	W24: Session 7: Plenary Session.....8:00 AM – 9:30 AM Session 8: High Energy Density Processes..... 9:30 AM – 12:00 PM Session 9: Honorary Symposium for Dr. John Elmer - Contributions to the Welding Metallurgy of Stainless Steels... 9:30 AM – 12:00 PM Session 10: Arc Welding..... 9:30 AM – 12:00 PM Session 11: Applied Technology..... 1:00 PM – 5:00 PM Session 12: Honorary Symposium for Dr. John Elmer - Contributions to Advanced In-Situ Characterization..... 2:00 PM – 5:00 PM Session 13: Modeling and Numerical Analysis II..... 1:00 PM – 5:00 PM		
EDUCATIONAL SESSIONS	W28: National Center for Welding Education and Training, Weld-Ed..... 8:00 AM – 12:00 PM		
RWMA SCHOOL	W22: RWMA Resistance Welding School - Day 2.....8:00 AM – 4:15 AM		

THURSDAY, NOVEMBER 8

SCHEDULE-AT-A-GLANCE

TECHNOLOGY	8:00 AM – 10:00 AM	10:30 AM – 12:30 PM	1:30 PM – 3:30 PM
3/D ADDITIVE MANUFACTURING	NEW! F70: Additive Manufacturing and Hybridized Production & Workflows I	NEW! F80: 3D Additive Manufacturing Tools for Fabricators I	
AUTOMATION	NEW! F71: Profitable Benefits of Automation in the Job Shop B	NEW! F81: Automation Monitoring & Maintaining Your Machines I	NEW! F91: Embracing Variability for Better Performance In Planning and Execution A
CUTTING / LASER	NEW! F72: Cutting Materials, Technology & Software - Nothing Has Changed...Except Everything! B	NEW! F82: Technologies for Waterjet & Plasma Advancements & Applications I	
FINISHING	NEW! C70: Top 10 Tips for Maintaining Your Powder Coating Operation I	NEW! C80: Key Elements of Spray Booth Design I	
	NEW! C71: From E-Coat to Top Coat A	C81: All About Ovens I	
	NEW! C72: Advancements in Pretreatment I		
FORMING & FABRICATING	NEW! F73: Alternate Forming Processes I	F83: Advanced Press Brake Technologies I	
	F74: Roll Forming: Tooling Design and Advanced Techniques I	NEW! F84: Tube & Pipe Cutting I	
LEAN	NEW! F75: Lean Tools: Advanced Lean Design and Preventative (PM) and Predictive Maintenance Strategies I	F85: Lean Tools: Lean Journey Case Studies and Lesson Learned B	
MANAGEMENT	NEW! F76: Managing Innovation in 21 st Century Business I	NEW! F86: Leadership Development for Millennials B	NEW! F96: Tax Reform, Tax Credits & Bringing Manufacturing Back to America B
MARKETING & SALES TOOLS			
SMART MANUFACTURING	NEW! F78: Smart Manufacturing Supply Chain & Real-World Case Studies I	NEW! F88: Smart Manufacturing Product Development Process: Get to Market Faster B	
STAMPING	NEW! S70: Sheet Metal Properties, Deformation Modes and Simulation Experiments I	NEW! S80: Stamping Process Optimization I	
	S71: Transfer System Technology I	NEW! S81: Apprenticeship Program for Pressroom Technicians I	
WELDING FABRICATION			
WORKFORCE DEVELOPMENT	NEW! F79: Career-Pathing and Building Advanced Manufacturing Pipelines B	NEW! F89: Engaging, Retaining & Filling Open Positions; Do More with Less B	NEW! F99: Leverage Culture to Communicate & Deliver Breakthrough Results I
WELDING			
SEMINARS	W12: Metallurgy Applied to Everyday Welding 8:00 AM – 4:15 PM W15: Better Understanding of Welding Symbols 8:30 AM – 12:30 PM		
PROFESSIONAL PROGRAM	W25: Session 14: Welding Metallurgy and Weldability Studies..... 8:00 AM – 10:30 AM Session 15: Honorary Symposium for Dr. John Elmer - Contributions to High Energy Density Welding..... 8:00 AM – 11:00 AM Session 16: Cladding and Dissimilar Joining..... 8:00 AM – 10:30 AM		

EXPERIENCE LEVELS

Use this key along with the Schedule-at-a-Glance to find the education level that meets your needs.

B Basic – Recommended for the attendee who is new to the industry or needs a refresher on the topic.

I Intermediate – Designed for the attendee who already has a basic understanding of the subject matter.

A Advanced – For the attendee with several years of experience who is seeking more in-depth information.

PRICING INFORMATION

EXHIBITS ONLY

Registration is FREE through November 2. Beginning November 3, the cost to attend the exhibits is \$50. AWS, FMA, SME, PMA, and CCAI members may always attend the exhibits for FREE with proof of membership.

SPECIAL EVENTS

INDUSTRY NIGHT AT MERCEDES-BENZ STADIUM

TUESDAY, NOVEMBER 6

Advance ticket price for attendees is \$75 and includes food and drinks, networking, entertainment, and more at Atlanta's Mercedes-Benz Stadium.

WOMEN OF FABTECH BREAKFAST WITH TECH TOUR

WEDNESDAY, NOVEMBER 7

Price for FABTECH Attendees is \$25 and includes a continental breakfast.

RUN4MFG 5K

THURSDAY, NOVEMBER 8

Registration for FABTECH Attendees is \$35* and includes a FABTECH 2018 RUN4MFG T-shirt. (*After Nov. 3 registration increases to \$50.)

EDUCATION PROGRAMS

3D/ADDITIVE MANUFACTURING, AUTOMATION, CUTTING/LASER, FINISHING, FORMING & FABRICATING, LEAN, MANAGEMENT, MARKETING & SALES TOOLS, SMART MANUFACTURING, STAMPING, WELDING FABRICATION, WORKFORCE DEVELOPMENT TRACKS

Packages (Buy More and SAVE!)	Member	Non-member
1 Session	\$175	\$200
2 Sessions	\$300	\$350
3 Sessions	\$405	\$480
4 Sessions	\$500	\$600
5 Sessions	\$600	\$725
Full Conference: (6 or more sessions)	\$690	\$840

NOTE: The rate for the 1/2-Day Laser Welding for Today's Fabricator Workshop (Session AWF100) is \$335 for Members and \$420 for Non-members.

WELDING TRACK

	Member	Non-member ^a
2-Day AWS Educational Sessions	\$150	\$225
1/2-Day Seminar	\$375	\$425
1-Day Seminar	\$565	\$665
2-Day Seminar or RWMA School	\$795	\$895
Career Path Workshops	\$50	\$75
1-Day Professional Program	\$175	\$225
3-Day Professional Program	\$375	\$425
Student Professional Program	\$75	\$100 ^b
AWS Awards Luncheon	\$30	\$35
AWS Prayer Breakfast	\$10	\$10

^a Non-member price for AWS Sessions only includes a one-year AWS Individual Membership.

^b Non-member Student Professional Program price includes a one-year AWS Student Membership.

CONFERENCE CANCELLATION POLICY: Cancellations must be made in writing and faxed to Attn: FABTECH Conference Cancellation at (313) 425-3407 no later than November 3, 2018 to receive a full refund minus a \$50 administrative fee. Cancellations received after this date are nonrefundable. Substitutions allowed.

3D/ADDITIVE MANUFACTURING

TUESDAY, NOVEMBER 6

8:00 AM – 10:00 AM

NEW! F10: REVOLUTIONIZING 3D ADDITIVE MANUFACTURING I

3D Printing & The Next Industrial Revolution

Greg Mark - Markforged

Choosing Between Additive and Subtractive Manufacturing

Greg Paulsen - Xometry

How Composites Are Revolutionizing The Manufacturing Line

Jonathon Reilly - Markforged

10:30 AM – 12:30 PM

NEW! F20: INTRODUCTION TO ADDITIVE MANUFACTURING AND 3D PRINTING B

Rick Neff - Cincinnati Inc.

1:30 PM – 3:30 PM

F30: FUNDAMENTALS OF 3D ADDITIVE SCANNING AND IMAGING I

Carl Dekker - Met-L-Flo Inc.

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

NEW! F40: A GUIDELINE TO METAL AM - PROCESSES, DESIGN AND APPLICATIONS I

Frank Geyer and Franziska Maschowski - TRUMPF Inc.

10:30 AM – 12:30 PM

F50: BUSINESS CONSIDERATIONS FOR 3D ADDITIVE TECHNOLOGY WITH TECH TOUR B

Carl Dekker - Met-L-Flo Inc.

1:30 PM – 3:30 PM

NEW! F60: 3D ADDITIVE MANUFACTURING APPLICATIONS FOR FABRICATORS I

A Deep Dive into Metal 3D Printing

Eric Utley - Proto Labs

Tried and True or Something New: Investment Casting versus Metal 3D Printing

Eric Mutchler - Stratasys Direct Manufacturing

Manual Laser Deposition As A Repair Process for 3D Printed Parts

Christopher Learn - Phoenix Laser Solutions and Wesley Wheeler - Alpha Laser-US

Achieving Theoretical Packing Density in Additive Manufacturing

Juan Schneider - Nanogrande Inc.

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! F70: ADDITIVE MANUFACTURING AND HYBRIDIZED PRODUCTION & WORKFLOWS I

The Role of Hybrid Manufacturing in 3D-Printing - Attributes and Future Avenues

Yashwanth Kumar Bandari and Alex Roschli - Oak Ridge National Laboratory

Additive Manufacturing Workflows - Hybrid Production of Metal and Silicone Parts

Jennifer Milne - Formlabs

Hybridized Manufacturing - Enhancing Traditional Tools with Additive Manufacturing

Kaitlyn Bailey and Cody Culbertson - FATHOM

10:30 AM – 12:30 PM

NEW! F80: 3D ADDITIVE MANUFACTURING TOOLS FOR FABRICATORS I

3D Post-Printing and the Advancement of the Direct Digital Thread

Daniel Hutchinson - PostProcess Technologies Inc.

Is 3D Printing the Right Process for Your Metal Part? It Depends.

Eric Utley - Proto Labs

The 'Supply Chain' is About to Break. How 3D Printing is Ushering in the Supply Web

Cullen Hilke - 3Diligent

AUTOMATION

TUESDAY, NOVEMBER 6

8:00 AM – 10:00 AM

NEW! F11: ROBOTICS AND AUTOMATED SYSTEMS FOR JOINING AND LASER INDUSTRY 4.0 I

Cutting and Joining Industry 4.0 Into Shape

Mike Pantaleano and Holger Hahn - ESAB Welding & Cutting Products

How Flexible and User-Friendly Collaborative Robots (Cobots) Can Automate Welding, Plasma Cutting and Other Process-Based Metal Fabricating Tasks

Brian Dillman - Universal Robots

Automated Laser Joining Systems That Produce Tailor Welded Blanks for Worldwide Automotive Industry: Production Systems That Meet Tomorrow's Manufacturing Challenges

David Guastaferri - Lincoln Electric Automation

10:30 AM – 12:30 PM

F21: GETTING STARTED WITH ROBOTICS B

Bob Rochelle - Gudel Inc.

1:30 PM – 3:30 PM

NEW! F31: AUTOMATION SOFTWARE FOR FABRICATION BUSINESS I

Get Ready for Growth: Purpose-Built Fabrication Business Technology

Christine Hansen - Epicor Software Corp.

Abandoned Implementation: The Real “AI” Challenging Manufacturers

Jean Magny - Genius ERP

Future of Manufacturing with Pragmatic Generative Technology

Mike Spellman, Phillip Doup and Sachlene Singh - Autodesk

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

NEW! F41: INTEGRATED SOLUTIONS FOR INDUSTRIAL AUTOMATION I

How IO-Link is Revolutionizing Industrial Automation

Will Healy - Balluff, Inc.

Reviewing Automatically Generated Connections

Steve Ashton - Ashton Engineering and Detailing, LLC

How to Adapt Parametric Modeling for Custom Fabrication

Jody Beck - Alabama Productivity Center

10:30 AM – 12:30 PM

NEW! F51: 10 SIGNS YOUR BUSINESS NEEDS TO REPLACE ITS ERP & LEVERAGING NEXT-GEN CLOUD ERP B

10 Signs Your Business Needs to Replace Its ERP

Bridget Lazlo - Guardian Business Solutions, Inc.

Crossing the Chasm-Leveraging Next-Gen Cloud ERP

David Lechleitner - KeyedIn Solutions

1:30 PM – 3:30 PM

NEW! F61: AUTOMATED TECHNOLOGY APPLICATION AND BENEFITS FOR LASER AND JOINING PROCESS I

The Requirement for Smart Workflows Around High-Powered Fiber Lasers

Brendon DiVincenzo - Bystronic Inc.

How Automated Crash Detection Can Save You and Your Customers Time and Money

Stefan Casey - Applied Robotics, Inc.

Benefits of Adaptive Robotics for the Metal Fabrication Industry

Louis Dicaire - AGT Robotics

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! F71: PROFITABLE BENEFITS OF AUTOMATION IN THE JOB SHOP B

Benefits of Multi-Arm Robotic Systems

Terry Tupper - Fanuc America Corporation

Profitable Robotic Programming for Low-Volume, High-Mix Production

Garen Cakmak - Hypertherm Robotic Software

Real World, Augmented Reality, Augmented Virtuality, Virtual Reality... How Many Realities Can You Have In Industrial Automation?

Simone Gianotti - Schneider Electric

Connecting You and Your Customers

Brad Stropes - SecturaSOFT

10:30 AM – 12:30 PM

NEW! F81: AUTOMATION MONITORING & MAINTAINING YOUR MACHINES I

Saving Money by Adopting Preventative (PM) and Predictive (PdM) Maintenance Strategies

Michael Schlagenhauser - Acuity

Predictive Maintenance: The Break/Fix is Dead

Will Zell - Nikola Labs

Wireless Monitoring for Maintenance Team: How Vibration, Thermal and Electrical Online Monitoring Provide a Complete Solution

Alex Desselle - Fluke

1:30 PM – 3:30 PM

NEW! F91: KEEPING YOUR ENEMY CLOSER: EMBRACING VARIABILITY FOR BETTER PERFORMANCE I

Michael Lilly - LillyWorks, Inc.

CUTTING/LASER

TUESDAY, NOVEMBER 6**10:30 AM – 12:30 PM****NEW! F22: ADVANCED FIBER LASER APPLICATIONS & DEVELOPMENTS** **I****Fiber Developments and Productivity**

Dustin Diehl - Amada America, Inc.

Fiber Laser with Optimized Beam Characteristics for Metal Cutting

Dahv Kliner - nLIGHT Corp.

Joining of Copper and Aluminum with IR Fiber Lasers

Eric Stiles - IPG Photonics Midwest

Real Time Vision Inspection of Laser Brazing or Welding Process

Jason Woolley - Abicor Binzel

Advanced Applications Enabled by Next-Generation Fiber Lasers

Brian Victor - nLIGHT Corp.

1:30 PM – 3:30 PM**F32: COMPARATIVE CUTTING SYSTEMS WITH TECH TOUR** **B****Waterjet Cutting**

David Dumas - Hypertherm Inc.

Laser Cutting

Hank White - MC Machinery Systems, Inc.

Plasma Cutting

Jim Colt - Hypertherm Inc.

WEDNESDAY, NOVEMBER 7**8:00 AM – 12:30 PM****AWF100: LASER WELDING FOR TODAY'S FABRICATOR WORKSHOP** **I****Essential Considerations for Laser Welding - From Component Design to Implementation**

David Havrilla - TRUMPF Inc.

Introduction to Industrial Laser Welding

Tom Kugler - Laser Mechanisms, Inc.

Laser Sources for Industrial Laser Welding: Fiber, Disk and Diode

Jean-Philippe Lavoie - Coherent Inc.

Material Selection for Laser Welding

Geoff Shannon - Coherent Inc.

System Overview for Laser Welding

Mark Boyle - Amada Miyachi America

Hybrid Laser Welding

Paul Denney - IPG Photonics

Laser Welding and Additive Technologies

Wayne Penn - Alabama Laser

Fiber Laser Cutting and Joining: Recent Advances in Technology, Tools, and Applications

Robert Borgstrom - Precitec

Laser Process Monitoring - The Use of Data

Mark Rodighiero - Amada Miyachi America

1:30 PM – 3:30 PM**NEW! F62: NEXT GENERATION LASER CUTTING TECHNOLOGY** **I****Combination Punch/Laser Machines - The Ultimate in Sheet Metal Fabrication Technology**

Timothy Brady - Amada America, Inc.

High-Power Diode Lasers and Innovative Industrial Applications

Oleg Raykis - Laserline Inc.

Oxy-Fuel Cutting - It's Time to Increase Your Profitability

Kurt Nachbargauer - IHT Automation GmbH & Co. KG

High-Speed Metal Cutting Using The Hybrid Induction-Plasma-Oxygen Process

Jerry Jones - EnergynTech, Inc.

THURSDAY, NOVEMBER 8**8:00 AM – 10:00 AM****NEW! F72: CUTTING MATERIALS, TECHNOLOGY & SOFTWARE - NOTHING HAS CHANGED...EXCEPT EVERYTHING!** **B****Cutting Materials - Nothing has Changed... Except Everything**

Kris Scherm - Multicam

Today's Nesting Software: Why Having Your Cutting Machines Connected to Your Network Matters

Derek Weston - Hypertherm Inc.

Design and Manufacturing Automation for Smart Production

Dylan MacLean and Ravi Javia - Autodesk Inc.

10:30 AM – 12:30 PM**NEW! F82: TECHNOLOGIES FOR WATERJET & PLASMA ADVANCEMENTS & APPLICATIONS** **I****Making a Decision: Buying Criteria vs. Ownership Criteria for High-Pressure Waterjet Equipment**

Bart Rijken - Hypertherm Inc.

Advancements in Waterjet Technology: How Predictive Systems Streamline Productivity

Arion Vandergon - Hypertherm Inc.

Understanding and Optimizing High-End Plasma Cut Quality

Harsha Jogdand and Phillip Parker - Hypertherm Inc.

The Value of a Self-Cleaning Cutting Table for Plasma Cutting

Allan Holst - Park Industries

TUESDAY, NOVEMBER 6**10:30 AM – 12:30 PM****C20: BUILDING BLOCKS OF POWDER COATING** **B**

Frank Mohar - Nordson Corp., John Sudges - Midwest Finishing Systems, Inc. and Michael Withers - Axalta Coating Systems

C21: FUNDAMENTALS OF A SUCCESSFUL ELECTROCOATING OPERATION **B**

Chad Andrae - Thermo-Tron-X, Inc.

C22: PRETREATMENT CHALLENGES **I**

From Pretreatment Issues to Finish Quality
Sergio Mancini - Bulk Chemicals, Inc.

To Descale or Not to Descale...That is the Topic

Ken Kaluzny - Coral Chemical Company

Cyanide Destruction: A New Look at an Age-Old Problem

Robin Deal - Hubbard-Hall

Optimizing and Maintaining Spray Patterns in a Wash System

Matthew Clark - Henkel

1:30 PM – 3:30 PM**C30: THE ABCs OF INFRARED** **B**

Scott Bishop - Alabama Power Co., Baskar Vairamohan - Electric Power Research Institute (EPRI), John Podach - Fostoria Process Equipment, and Tim O'Neal - Selas Heat Technology Co.

NEW! C31: FIRST THINGS FIRST - HANGING AND MASKING **I****Hanging Proficiency - A Key to Production Efficiency**

Scott Rempala - Mighty Hook

Masking Solutions

Christopher Malone, Mike Connell and Hans Nilarp - Caplugs

C32: NEW OR IMPROVE - WHAT'S BEST FOR YOUR FINISHING SYSTEM **I****A Case Study Judging the Feasibility of Purchasing a New Finishing System**

Nicholas Liberto - Powder Coating Consultants

Knowing When to Upgrade Your System

Matt Ambrose - Nordson Corp.

Ideas for implementing Lean into Your Powder Coating Operation

Marty Sawyer - Trimac Industrial Systems, LLC

WEDNESDAY, NOVEMBER 7**8:00 AM – 10:00 AM****C40: OPTIMIZING BATCH POWDER COATING OPERATIONS** **I**

John Sudges - Midwest Finishing Systems, Inc., John Cole - Parker Ionics and Suresh Patel - Chemtall US, Inc., a BASF Company

NEW! C41: BLASTING YOUR WAY TO SUCCESS **I****You Cannot Manage What You Do Not Measure - The Increasing Role of Technology in Measuring and Managing Your Blast Operation**

Joseph Craig - Blast Services Inc.

Reducing the Strain with Limited Maintenance Resources to Maintain Your Shot Blasting Equipment

Carl Panzenhagen - Blast Cleaning Technologies

CO₂ Spray Cleaning and Pretreatment of Surfaces for Automotive Applications

Nelson Sorbo - Cool Clean Technologies

C42: ARCHITECTURAL COATINGS - BUILDING A LASTING FINISH **B**

Dustin Mullet - Dura Coat Products, Inc., Manuel Mayer and Michael Withers - Axalta Coating Systems

10:30 AM – 12:30 PM**NEW! C50: POWDER COATING AND INDUSTRY 4.0, REALLY?** **A****Powder Coating and Industry 4.0, Really?**

Jeffrey Hale - Gema USA Inc.

Data Acquisition and the Art of Powder Coating

Mike Thies - Gema USA Inc.

C51: IDENTIFY AND SOLVE FINISHING DEFECTS: SEE IT, TOUCH IT, FIX IT **I**

David Schimpff - DuBois Chemicals, Diego Bertolo - SAMES KREMLIN Inc., Tabitha McLeish and Curt Wild - The Sherwin-Williams Co.

NEW! C52: DEVELOPING A LIQUID COATING KNOWLEDGE BASE **B****Basics of Liquid Coatings**

Dan Szczepanik - The Sherwin-Williams Co.

Building a Knowledge Base of Liquid Application Equipment

Martin Powell - Carlisle Fluid Technologies

1:30 PM – 3:30 PM**NEW! C60: AUTOMATION - IS IT FOR EVERYONE?** **I****Levels of Automation in Automated Finishing Systems**

John Claman - IntelliFinishing

Robotic Paint and Powder Coating

Mike Dilday - FANUC America

Finishing Robot Applications for Military and Aerospace Users

Michael Elberson - Autoquip Automation

NEW! C61: SAFETY - IT WORKS FOR ALL OF US

Focus on the Codes that Prevent Fires and Explosions

Martin Powell - Carlisle Fluid Technologies

Safety: It Works for All of Us

Martin Korecky - AkzoNobel Coatings, Inc.

NEW! C62: IMPROVING PERFORMANCE OF PRETREATMENT PROCESSES

Best Practices for Manual Pretreatment Applications

Kirk Beaster - Chemetall US, Inc., a BASF Company

The Game Changer - Greener and More Cost-Effective Phosphatization

Michael Frechette - Hubbard-Hall

Emerging Technologies and Future Developments of Cleaning and Pretreatment

Chris Berger - Calvary Industries, Inc.

THURSDAY, NOVEMBER 8

8:00 AM - 10:00 AM

C70: NEW! TOP 10 TIPS FOR MAINTAINING YOUR POWDER COATING OPERATION

Bill Owens - AkzoNobel Powder Coatings, Hector Flores and Joe Glassco - Wagner Industrial Solutions

NEW! C71: FROM E-COAT TO TOP COAT

ECoat Prime/Powder or Liquid Top Coat - A First Class Combination

Joe Laubenthal - Therma-Tron-X, Inc.

Electrodeposition Coatings (E-Coat) Technology - Selecting the Correct Technology to Meet Performance Needs

Kevin Kahl and John Hromadka - The Sherwin-Williams Co.

NEW! C72: ADVANCEMENTS IN PRETREATMENT

New Advances in Zirconium Chemistry

David Schimpff - DuBois Chemicals

9 Must-Know Reasons to Consider Zr-Based Advanced Pretreatments

Suresh Patel - Chemetall US, Inc., a BASF Company

10:30 AM - 12:30 PM

NEW! C80: KEY ELEMENTS OF SPRAY BOOTH DESIGN

How Codes Affect Your Spray Booth Design

Robert Hauck - Spray Systems

Utilizing LED Technology to Best Light Your Booth

Nicole Boss - LDPI Inc.

Filtration Options for Paint Applications

John Owed - Col-Met Engineered Finishing Solutions

C81: ALL ABOUT OVENS

Benefits of Longwave Infrared for Drying, Gelling and Curing Liquid and Powder Coatings

Michael Chapman - Heraeus Noblelight America LLC

Oven Design Basics - The Cure for Success

Bill Oney - Therma-Tron-X

Getting the Right Temperature

Robert Hertel - BYK-Gardner USA



FORMING & FABRICATING

TUESDAY, NOVEMBER 6

8:00 AM - 10:00 AM

F13: COIL PROCESSING: ADVANCEMENTS IN SLITTING, LEVELING AND STORAGE I**Leveling and Deburring: Modern Metal Processing**

Nicholas Miller - ARKU, Inc.

Improving Profits by Employing Novel Handling & Storage Solutions: 40 Years of Case Histories

Michael Baach and Steve Detweiler - Philpott Rubber & Plastics Company

Slitting Advanced High-Strength Steel

Al Zelt - ASKO Inc.

F14: ROLL FORMING: IN-LINE PUNCHING, CUTOFF DIES AND PRESS TONNAGE I**Value to Your Rollforming Lines with In-line Punching and Cutoff Dies**
Paul Williams - Hill Engineering/ Formtek Inc.**When the Press Tonnage Rating Is Really Not the Tonnage in a Roll Forming Line**
Paul Williams - Hill Engineering/ Formtek Inc.

10:30 AM - 12:30 PM

NEW! F23: PRESS BRAKE SPRINGBACK SOLUTIONS I**Overcoming Springback With Proper Tooling Choices**

Larry Boden - Mate Precision Tooling

Springback - Take The Red Pill

Steve Benson - ASMA LLC

F24: WELDING ADVANCEMENTS FOR TUBE & PIPE I**Advancements in HF Welding Data Collection and Analytics**

Victor Monreale - Thermatool Corp.

Advancements in Thermal Imaging for HF Welding Applications

Grant Huffman - Thermatool Corp.

Understanding How Shielding Gas Flow Can Improve Quality and Reduce Cost

Andrew Pfaller - Miller Electric Manufacturing LLC

1:30 PM - 2:30 PM

F33: PRESS BRAKE SAFETY: ANSI B11.2 EXPLAINED IDouglas Raff - Paragon Industrial Controls, Inc.
Brian Roberts - CNA Risk Control Services**NEW! F34: TUBE & PIPE: BENDING I****Tube Bending 101 - Overview of Options for Forming Tube and Technical Considerations**

Dan Corray, Lisa Wertzbaugher and Jeff Otten - Superior Tube Products

Tube Bending - A Black Art?

Danie Jacobs - Cincinnati Industrial Machinery, Inc.

WEDNESDAY, NOVEMBER 7

8:00 AM - 10:00 AM

NEW! F43: SHEET METAL: CONTROLLING COSTS WITH GOOD DESIGN AND EQUIPMENT PURCHASES I**Rethinking Sheet Metal Design to Reduce Costs and Improve Manufacturability**

Grant Hagedorn - TRUMPF Inc.

How To Get More Bang For Your Buck: The Do's and Don'ts of Purchasing A Sheet Metal Fabrication Machine

Yuksel Taskin - Durma North America Inc.

NEW! F44: COIL PROCESSING: SLITTING THIN MATERIALS AND LASER BLANKING I**Processing Thin, Ultra Thin and Surface Critical Material, Slitting, CTL**

Mike McGuire - Burghardt + Schmidt GmbH

Flexible and Efficient Blanking with Lasers

Jay Finn - LaserCoil Technologies, LLC

10:30 AM - 12:30 PM

NEW! F53: ROLL FORMING: JUSTIFICATION, BASICS AND LUBRICANTS B**Justification for Roll Forming**

Brian Rodgers - Formtek, Inc.

Roll Forming Basics

Brian Rodgers - Formtek, Inc.

Modern Lubricants for Roll Form Processes

David Kinnard - Tower Metalworking Fluids

F54: EFFECTIVE SAFEGUARDING RISK ASSESSMENT B

Douglas Raff - Paragon Industrial Controls, Inc. and Brian Roberts - CNA Risk Control Services

1:30 PM - 3:30 PM

NEW! F63: TUBE & PIPE: FORMING AND LUBRICATION A**Proven Lubrication for Mandrel Tube Bending**

Christopher Fletcher - Tower Metalworking Fluids

From Mass Production to Lot Size One - Customized Automation in Tube Forming Production

Klaus Wurster - WAFIOS Tube Automation

Modern Tube Bending Machinery

Greg Miller - Tubular Solutions Inc.

NEW! F64: HOT FORMING WITH TITANIUM I

Scott Pryer - PRYER Machine, Jeffrey Debus - Beckwood Press Company and Don Voke - Duraloy Technologies

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! F73: ALTERNATE FORMING PROCESSES I

New Development within the Hydroform Technology
Peter Falk - Quintus Technologies

The Advantageous Alliance of 3D Printing and FluidForming

Jurgen Pannock and Paul Benny - FluidForming Americas, LLC

NEW! F74: ROLL FORMING: TOOLING DESIGN AND ADVANCED TECHNIQUES I

The Basics of Roll Tooling Design
John Kopsick - Formtek Inc.

Advanced Roll Forming Techniques

Brian Rodgers - Formtek, Inc.

10:30 AM – 12:30 PM

NEW! F83: ADVANCED PRESS BRAKE TECHNOLOGIES I

Bending Big: Large Tonnage Applications
Vincent Iozzo - TRUMPF Inc.

Maximizing Bending Productivity

Scott Ottens - Amada America Inc.

How New Press Brake Technologies Help Fabricators Reduce Operator Learning Curve and Experience Level

Paul LeTang - Bystronic Inc.

NEW! F84: DIGITAL TRANSFORMATION OF TUBE & PIPE CUTTING I

Digital Transformation of Tube & Pipe Cutting
Adria Haines - Lantek Systems, Inc.

LEAN

TUESDAY, NOVEMBER 6

8:00 AM – 10:00 AM

NEW! F15: LEAN PRINCIPLE: STRATEGIC PLANNING AND ORGANIZATIONAL ALIGNMENT A

Vince Bovino - Bovino Consulting Group

10:30 AM – 12:30 PM

NEW! F25: LEAN PRINCIPLE: DEVELOPING YOUR PEOPLE I

How to Build Accountability in Your Organization
Mark Ernst - Ernst Enterprises

Leading Your Business Forward: Creating and Sustaining High-Performance Organizations

Seth Davies - Competitive Solutions Inc.

1:30 PM – 3:30 PM

NEW! F35: LEAN TOOLS: VALUE STREAM MAPPING, ADDRESSING DIFFERENCES BETWEEN OFFICE AND SHOP FLOOR I

Mike Osterling - Osterling Consulting, Inc.

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

F45: LEAN TOOLS: A3 THINKING - DEVELOPING PEOPLE & SOLVING PROBLEMS I

Mike Osterling - Osterling Consulting, Inc.

10:30 AM – 12:30 PM

F55: LEAN TOOLS: FLOW AND PULL CREATING FLOW IN HIGH-VARIETY ENVIRONMENTS I

Kevin Duggan - Institute for Operational Excellence

1:30 PM – 3:30 PM

NEW! F65: LEAN PRINCIPLE: CONTINUOUS IMPROVEMENT IN LEAN CULTURE B

Flavors of Improvement: Choosing the Right Improvement Approach for your Business

David Hicks - Auburn University

How to Incorporate Information Technology Into Your Continuous Improvement/Lean Culture

Bridget Lazlo - Guardian Business Solutions, Inc.

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! F75: LEAN TOOLS: ADVANCED LEAN DESIGN AND PREVENTATIVE (PM) AND PREDICTIVE MAINTENANCE STRATEGIES I

Using Simulation Modeling for Advanced Lean Manufacturing Design
Jason Merschatt - Advanced Process Optimization, Inc.

Preventing Injuries By Implementing Preventative (PM) and Predictive Maintenance Strategies

Michael Schlagenhauser and Gwendolyn Arps - Acuity

10:30 AM – 12:30 PM

F85: LEAN TOOLS: LEAN JOURNEY CASE STUDIES AND LESSONS LEARNED B

Jeff Sipes - Back2Basics, LLC, Rich Steel, Jerry Stahlman and Dave Harris - Miller Welding & Machine Co.

MANAGEMENT

TUESDAY, NOVEMBER 6**8:00 AM – 10:00 AM****F16: FUNDAMENTALS OF ACTIVITY-BASED COSTING & ESTIMATING** **I****What Does the Perfect Order Look Like?**

Kevin Seefried - TwinEngines, Inc.

Job Shop Costing and Estimating

Don Clutter - MIE Solutions

Activity-Based Costing - Are Your Jobs Really Profitable?

David Lechleitner - KeyedIn Solutions

10:30 AM – 12:30 PM**NEW! F26: RISING ABOVE IT ALL: THE ART AND SCIENCE OF ORGANIZATIONAL TRANSFORMATION** **I**

John Lee - Alpha Training and Consulting

1:30 PM – 3:30 PM**NEW! F36: BECOMING A LEARNING LEADER AND AVOIDING THE FATAL FLAWS OF FAILURE - PART I AND PART II** **I**

Joseph Mazzeo - Integrated Lean and Quality Solutions, LLC

WEDNESDAY, NOVEMBER 7**8:00 AM – 10:00 AM****NEW! F46: INNOVATION & BUSINESS STRATEGIES FOR GROWTH** **I****The Top 5 Leadership Actions to Easily Accelerate Your Results and Exceed Your Targets**

David Tweedt - Win Enterprises, LLC

Business Builders: Growth Strategies in a Bustling Economy

Mark Frasco - COACT Associates, Ltd.

10:30 AM – 12:30 PM**NEW! F56: WHAT'S YOUR BUSINESS WORTH & PATENT RIGHTS FOR YOUR IP** **I****What is Your \$2M, \$5M, \$10M, \$25M, \$50M and \$100M Revenue Metal Fabrication Business Worth?**

Matthew Bradbury and Bobby Lewis - Business Acquisition & Merger Associates

Patent Rights in Metal Processing

Marshall Honeyman - Erise IP

1:30 PM – 3:30 PM**F66: SUCCESSION STRATEGIES TO PROTECT YOUR BUSINESS** **B****Conquering Family Business Conflict and Succession**

Henry Hutcheson - Family Business USA

Don't Kill Your Golden Goose – Succession Strategies to Protect & Perpetuate Your Business

Larry Oxenham - American Society for Asset Protection

THURSDAY, NOVEMBER 8**8:00 AM – 10:00 AM****NEW! F76: MANAGING INNOVATION IN 21ST CENTURY BUSINESS** **I****Managing Innovation in 21st Century Business**

Cullen Hackler - Porcelain Enamel Institute

Paving a Strategic ROADMAP™ to Success

Andy Shafer - Shafer's Innovation and Business Building Services

10:30 AM – 12:30 PM**NEW! F86: LEADERSHIP DEVELOPMENT FOR MILLENNIALS** **B**

Cullen Hackler - Porcelain Enamel Institute

1:30 PM – 3:30 PM**NEW! F96: TAX REFORM, TAX CREDITS & BRINGING MANUFACTURING BACK TO AMERICA** **B****It's Time to Bring Manufacturing Back to America**

Rosemary Coates - Reshoring Institute at University of San Diego

Tax Reform to Boost M&A Activity

Vincent Pappalardo - Brown Gibbons Lang & Company

Building a Competitive Advantage for Your Business Through R&D Tax Credits

John Madsen - Black Line Group



MARKETING & SALES TOOLS

TUESDAY, NOVEMBER 6

10:30 AM - 12:30 PM

NEW! F27: INCREASE YOUR ROI WITH DIGITAL MARKETING FOR MANUFACTURERS B

Why Manufacturers Can't Afford to Ignore Digital Marketing in 2019

Stoney deGeyter - Pole Position Marketing

Digital Marketing for Contract Fabricators/Using Data for Continuous Improvement

Tim Doyle - TopSpot

1:30 PM - 3:30 PM

NEW! F37: MARKETING BOOTCAMP: TECHNOLOGY, PROSPECTS & VOICE OF THE CUSTOMER B

Marketing Technology Boot Camp 2018 - How Fabricators Can Acquire More of the Right Kind of Customers

Dan Konstantinovskiy - RH Blake

Learn How to Conduct Powerful, Fact Based Voice of the Customer Research

Brian Kent - Fairmont Concepts

Attract, Convert, Close, and Delight Your Prospects with Inbound Marketing

Nicole Wagner - Stevens & Tate Marketing

WEDNESDAY, NOVEMBER 7

8:00 AM - 10:00 AM

NEW! F47: 5 STEPS TO WORLD-CLASS CUSTOMER EXPERIENCES B

Bill Sterzenbach - Upward Brand Interactions

10:30 AM - 12:30 PM

NEW! F57: SALES & MARKETING PERFORMANCE MANAGEMENT OF PEOPLE & SYSTEMS I

Sales and Marketing Systems for Scalable Growth in Advanced Manufacturing and Capital Equipment

Michele Nichols - Launch Team, Inc.

Business Builders: Performance Management of the Sales and Marketing Functions

Mark Frasco - COACT Associates, Ltd.

1:30 PM - 3:30 PM

NEW! F67: ACTIONABLE MARKETING STRATEGIES FOR COMPETITIVE ADVANTAGE I

You Are Going About Revenue Growth All Wrong - Why Everyone In Your Organization Needs To Understand Inbound

Todd Hockenberry - Top Line Results

Top Lead Generation Methods for Manufacturers

Chip Burnham - Fairmont Concepts

Four Actionable Marketing Strategies to Improve Lead Generation Results

Dan Gartlan - Stevens & Tate Marketing

How Distributors Can Make the Most Out of Their Co-op(portunities)

Tim Rasmussen - Rivet MRO

SMART MANUFACTURING

TUESDAY, NOVEMBER 6

10:30 AM – 12:30 PM

NEW! F28: ROADMAP TO SMART MANUFACTURING TRANSFORMATION **I**

Smart Manufacturing: Why Should I Care? Where Do I Start?

Will Healy - Balluff, Inc.

Building a Roadmap to Digital Manufacturing Transformation

Eric Fogg and Graham Immerman - MachineMetrics

Realizing Competitive Advantage From the IoT on a Budget: Yes You Can!

Christine Hansen - Epicor Software Corporation

Real-World Scenarios in Transformation

Jeff Carr - Ultra Consultants

1:30 PM – 3:30 PM

NEW! F38: SMART MANUFACTURING TECHNOLOGY & WORKFORCE READY **B**

Smart Factory, Industrial IoT, and Industry 4.0 Technical Perspective

Eric Trexler, Jonathan Kim and Andrew Hwang - Amada America Inc.

Developing a Smart Manufacturing Ready Workforce

Jeannine Kunz - Tooling U-SME

Transdisciplinary Education: Preparing Students for the Smart Factory

Yuri Hovanski and Andrew Nemrow - Brigham Young University

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

NEW! F48: THE HUMAN AND DIGITAL ROLE IN THE FACTORY OF THE FUTURE **I**

The Human Role In the Factory of the Future

Shannon Bennett - Visual Knowledge Share

Digitize & Thrive: An Interactive Presentation for Determining Your Location on the Path to Industry 4.0

Kevin Must and Adria Haines - Lantek Systems, Inc.

1:30 PM – 3:30 PM

NEW! F68: ACTIONABLE INTELLIGENCE: MANAGE DATA TO ENABLE GOOD DECISIONS **A**

Actionable Intelligence - IoT That Matters

Kris Scherm - Multicam

Integrating Quality and Operational Data into Manufacturing/Industry 4.0

Mark Roos - ATS Applied Tech Systems, LLC

Physical and Cyber Security on the Shop Floor: NIST 800-171 and Return on Investment

Rob Dolci - Aizoon

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! F78: SMART MANUFACTURING SUPPLY CHAIN & REAL-WORLD CASE STUDIES **I**

The Future of Analytics and the Supply Chain

Kevin Must and Adria Haines - Lantek Systems, Inc.

Improving Profitability and OTIF by Using Product Segregation and Rationalization as a Tool for Strategic Decisions

Ruben Mirensky - IMCO Associates, Inc.

Internet of Things Meets Kanban: An Updated Take on Inventory Control and E-kanban

David Beauchamp - xTuple

10:30 AM – 12:30 PM

NEW! F88: SMART MANUFACTURING PRODUCT DEVELOPMENT PROCESS: GET TO MARKET FASTER **I**

James Ullum - Source International

STAMPING

TUESDAY, NOVEMBER 6

10:30 PM – 12:30 PM

NEW! S20: MACHINE SAFETY - SAFEGUARDING OVERVIEW ⓘ

Roger Harrison - Rockford Systems, LLC

NEW! S21: LUBRICATION TECHNOLOGY ⓘ**LUBRI-NOMICS - The Science of Lubrication and Economics in Metal Stamping**

Bob Anderson and Christopher Fletcher - Tower Metalworking Fluids

Chlorinated Metal Working Fluids - Fact, Fiction & Options

Bob Anderson and Christopher Fletcher - Tower Metalworking Fluids

1:30 PM – 3:30 PM

NEW! S30: MACHINE SAFETY - ALTERNATIVE METHODS FOR APPLYING HAZARDOUS ENERGY CONTROL ⓘ

Ted Sberna - White Horse Safety

NEW! S31: SENSOR TECHNOLOGY - ELIMINATING DIE CRASHES ⓘ

Jim Finnerty - Wintriss

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

NEW! S40: SENSOR TECHNOLOGY - PRACTICAL APPLICATIONS ⓘ**Making Sense of Sensors for Metal Forming & Assembly**

George Keremedjiev - Tecknow Education Services, Inc.

Automatic In-Die Part-Quality Monitoring & Tool Adjustments

James Barrett - Link Systems, Inc.

NEW! S41: STAMPING AHSS MATERIALS ⓘ**Introduction to AHSS Properties**

Peter Ulintz - Precision Metalforming Association

Taking the Kinks Out of Straightening 1000+ MPa Steels

Hunter Coe and Tom Brockie - COE Press Equipment

Tooling Optimization for AHSS Applications

Jeremy Edson - Wilson Tool International

10:30 AM – 12:30 PM

NEW! S50: ADVANCE PRESS ROOM TECHNOLOGY ⓘ**Applications of Real-Time and Non-Destructive Evaluation Tools to Achieve First-Time Quality Stampings**

Hyunok Kim - EWI

Case Studies of IO-Link Modernizing the Press Shop

Will Healy - Balluff, Inc.

NEW! S51: SOLVING PROGRESSIVE DIE PROBLEMS ⓘ

Peter Ulintz - Precision Metalforming Association

1:30 PM – 3:30 PM

NEW! S60: SENSORS, CONTROLS AND CONNECTIVITY ⓘ**Creating a Die Protection Program on a Limited Budget**

George Keremedjiev - Tecknow Education Services, Inc.

Controls and Connectivity: Collecting and Moving Data From the Shop to the Office

Jim Finnerty - Wintriss

NEW! S61: PREVENTATIVE MAINTENANCE IN THE PRESS ROOM ⓘ

Jeffery Fredline - CNC Press Repair

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! S70: SHEET METAL PROPERTIES, DEFORMATION MODES AND SIMULATION EXPERIMENTS ⓘ**Material Properties and Deformation Modes: Keys for Solving Metal Forming Problems**

Peter Ulintz - Precision Metalforming Association

Design of Experiments in Process Simulation

James Miller and John Walters - Scientific Forming Technologies Corp.

NEW! S71: TRANSFER SYSTEM TECHNOLOGY ⓘ**Sensing Fundamentals and Technical Sensing Solutions Found in Progressive and Transfer Stamping**

David Bird and Shawn Day - Balluff, Inc.

Press Mounted Transfer Systems

Rodney Naseman - Wayne Trail, a Lincoln Electric Company

10:30 AM – 12:30 PM

NEW! S80: STAMPING PROCESS OPTIMIZATION ⓘ

Kidambi Kannan - AutoForm Engineering USA Inc.

NEW! S81: APPRENTICESHIP PROGRAM FOR PRESSROOM TECHNICIANS ⓘ

George Keremedjiev - Tecknow Education Services, Inc.



WELDING FABRICATION

TUESDAY, NOVEMBER 6

10:30 AM - 12:30 PM

NEW! W20: WELDING FOR STEEL AND ALUMINUM APPLICATION I

Practical Considerations Required for Proper Fabrication & Repair Welding of Duplex & Superduplex Stainless

John Stoll - voestalpine-Bohler Welding USA, Inc.

Improve Productivity by Welding with AC Pulse on Thin Aluminum

Michael Klee - Lincoln Electric Company of Canada

How To Keep Stainless... 100% Stainless

Robert Saunders - voestalpine Bohler Welding USA, Inc.

Wire-Based Additive Manufacturing of Aluminum Parts

Shuang Liu - Miller Electric Manufacturing LLC

1:30 PM - 3:30 PM

NEW! W30: WELDING FOR LASER & CUTTING REPAIR TECHNOLOGY I

Automated 2D/3D Sensing for Remote Laser Welding Applications

Thibault Bautze - Precitec GmbH & Co. KG

Timelines in Field Welding Drive Need for Versatile and Portable Products

Andrew Pfaller - Miller Electric Manufacturing LLC

Laser Hot Wire Processing for Cladding and Additive Manufacturing Applications

Maxwell Radke - Wayne Trail Technologies

WEDNESDAY, NOVEMBER 7

8:00 AM - 10:00 AM

NEW! W40: WELDING OF ADVANCED AND SPECIALTY MATERIALS I

Modeling of Severe Plastic Deformation in Mash Seam Welding using Improved Electro-Thermo-Mechanical Simulation

Alexey Kuprienko - The Ohio State University

Friction Stir Welding of Hot Rolled and Annealed Armor Steel

William Evans - The Ohio State University

DeltaPoint Manifold with Water Extraction Technology (WET)

Peter Hackett - Universal Flow Monitors

Deoxidation & Welding Implications in Super-Austenitic Grades

David O'Donnell - RathGibson

10:30 AM - 12:30 PM

NEW! W50: LEAN & QUALITY WELDING FOR SMART MANUFACTURING I

Total Weld Quality Management System - Big Data Turned into Action

Jeffrey Noruk - Servo Robot Corporation

Lean Manufacturing in Anodizing Aluminum

Thiru Munisamy - Raytheon

Impact of Exoskeletons on Welding Safety, Quality, and Productivity

Terry Butler - Lean Steps Consulting Inc.

NEW! W60: FUNDAMENTALS OF WELDING PROJECT SUCCESS I

Mike Lang, Welding and NDE Services

WORKFORCE DEVELOPMENT

TUESDAY, NOVEMBER 6

8:00 AM – 10:00 AM

NEW! F19: 8 ELEMENTS TO EFFECTIVE DELEGATION & HOW TO GET MORE FROM THE PEOPLE YOU'VE GOT **B**

8 Elements to a More Effective Delegation

Mark Ernst - Ernst Enterprises

How to Get 25% More from the People You've Got - Three Proven Shortcuts to Increase Output During Low Unemployment

Charles DeBettignies - Gainsharing Inc.

10:30 AM – 12:30 PM

NEW! F29: INNOVATIVE TECHNIQUES TO MANAGE SIGNIFICANT IMPROVEMENT AND CHANGE INITIATIVES **I**

Managing Complex Change: "The Challenge of Implementing a Significant Improvement Initiative"

Gary Higbee - SafeStart®

Change is RUNNING At You...Are You Ready?

Paul Vragel - 4aBetterBusiness, Inc.

1:30 PM – 3:30 PM

NEW! F39: THE BEAUTY OF BEING LOST: MAKE BETTER DECISIONS & LEAD CHANGE IN YOUR ORGANIZATION **I**

The Beauty of Being Lost While Leading a Change

Noa Ronen - Noa Ronen Coaching

Making Better Decisions

Dan Ryan - Ryan Search & Consulting

How to Lead a Change Initiative

Mark Ernst - Ernst Enterprises

WEDNESDAY, NOVEMBER 7

8:00 AM – 10:00 AM

F49: MANUFACTURING AND THE MILLENNIAL: HOW TO ATTRACT AND RETAIN EMERGING LEADERS **B**

Manufacturing and the Millennial Generation: Tips for Recruitment, HR, and Sales

Josh Curcio - protocol 80, Inc.

Engaging Manufacturing's Next Generation through Full Contact Innovation

Bill Padnos - NTMA

Millennials and the Future of Manufacturing - How to Attract and Retain Future Talent

Joseph Mazzeo - Integrated Lean and Quality Solutions, LLC



10:30 AM – 12:30 PM

NEW! F59: ACCOUNTABILITY, ENGAGEMENT & A CULTURE THAT ROCKS **I**

Pete Winiarski - Win Enterprises, LLC

1:30 PM – 3:30 PM

F69: ACCELERATING WORKFORCE PERFORMANCE THROUGH BEST PRACTICES IN LEARNING AND DEVELOPMENT **I**

John Hindman - Tooling U-SME

THURSDAY, NOVEMBER 8

8:00 AM – 10:00 AM

NEW! F79: CAREER-PATHING & BUILDING ADVANCED MANUFACTURING PIPELINES **B**

5 Steps to Creating a Successful Career-Pathing Program

Mark Ernst - Ernst Enterprises

Advanced Manufacturing Training

Hernán Luis y Prado - Workshops for Warriors

10:30 AM – 12:30 PM

NEW! F89: ENGAGING, RETAINING & FILLING OPEN POSITIONS: DO MORE WITH LESS **B**

Attract, Recruit, Retain - Win The War For Talent

Greg Lee - WorldBridge Partners

Do You Really Need to Fill All Those Open Positions? Learn How to Do More with Less.

Chuck Mouranie and Ken Mall - EDSI

Mastering the Millennial Mindset: How to Attract and Retain Emerging Leaders

Lisa Ryan - Grategy.com

1:30 PM – 3:30 PM

NEW! F99: LEVERAGE CULTURE TO COMMUNICATE & DELIVER BREAKTHROUGH RESULTS **I**

Break Out of Your Cultural Comfort Zone to Communicate Globally

Annalisa Nash Fernandez - Because Culture

Leveraging Culture to Deliver Breakthrough Results

Amir Ghannad - The Ghannad Group, LLC





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TUESDAY, NOVEMBER 6**8:00 AM – 5:00 PM****W10: NDT DAY**

This seminar will provide the fundamental knowledge of radiography and of penetrant testing required by inspectors, quality assurance, and test personnel.

Scott Helzer, AWS Instructor

**TUESDAY, NOVEMBER 6 –
WEDNESDAY, NOVEMBER 7****8:00 AM – 5:00 PM****W13: CWI PART B HANDS-ON
EXPERIENCE**

Learn to review WPSs and WPQRs for completeness and accuracy. Excellent preparation for Part B of the CWI Exam for those pursuing the Certified Welding Inspector credential.

Mike Carey, AWS Instructor

W14: WELDING OF STAINLESS STEELS

- Applications of Stainless Steel Welding: Part 1 – The Basics
- Applications of Stainless Steel Welding: Part 2 – Avoiding Defects

Richard Campbell, AWS Instructor

WEDNESDAY, NOVEMBER 7**8:00 AM – 5:00 PM****W11: THE WHY AND HOW OF WELDING
PROCEDURE SPECIFICATIONS**

This two-part session revisits the fundamentals of WPSs for those individuals seeking to become more proficient in the authoring and application of a WPS in fabrication and offers a hands-on approach to advanced instruction in the formulation and writing of WPSs.

Scott Helzer, AWS Instructor

THURSDAY, NOVEMBER 8**8:00 AM – 4:15 PM****W12: METALLURGY APPLIED TO
EVERYDAY WELDING**

Learn how welding affects the properties of base materials and how weld defects occur.

Scott Helzer, AWS Instructor

8:30 AM – 12:30 PM**W15: BETTER UNDERSTANDING OF
WELDING SYMBOLS**

The goal of this seminar is to provide a good understanding of AWS welding symbols, with explanations of their proper and improper use.

Richard Campbell, AWS Instructor

**RWMA RESISTANCE
WELDING SCHOOL****TUESDAY, NOVEMBER 6 –
WEDNESDAY, NOVEMBER 7****8:00 AM – 4:15 PM****W22: RWMA RESISTANCE WELDING
SCHOOL**

Start preparing for the upcoming Certified Resistance Welding Technician (CRWT) certification exam at the Emmett A. Craig RWMA Resistance Welding School. Offered only once each year, and presented by industry experts, this is an intensive two-day course covering the fundamentals of Resistance Welding. The course is designed for personnel in a variety of roles, such as Welding & Production Managers & Supervisors, Engineers & Technicians, Setup and Senior Operators, Trainers & Educators. Students emerge from the course with a better understanding of Resistance Welding Fundamentals, from Theory to Application Requirements to Equipment used in various resistance welding processes.

The focused learning environment better prepares those new to Resistance Welding, and further educates the experienced. Day One discusses the process and machines, materials, electrodes and power systems associated with resistance welding. Day Two explores resistance welding controls, quality standards, machine setup and maintenance. The school concludes with a panel discussion where students are encouraged to discuss their specific applications with all of the instructors.



CAREER PATH WORKSHOPS

TUESDAY, NOVEMBER 6**10:00 AM – 12:00 PM****NEW! W16: STARTING A WELDING INSPECTION BUSINESS**

What is required legally to go into business for yourself as a consultant? Learn from successful entrepreneurs who made welding inspection work for them.

1:00 PM – 3:00 PM**NEW! W17: CREATING A WPS IN 60 SECONDS**

Learn how to save time and money by creating accurate and prequalified WPSs, or even more specialized welding procedures safely by using technology.

3:00 PM – 5:00 PM**NEW! W18: WELDING ENGINEER'S ROUND TABLE DISCUSSION**

Meet a panel of knowledgeable welding engi-

neers and experts from various industry sectors who will share their experiences of how they chose welding as a career, how they became welding engineers and address some of the issues they face on a daily basis.

WEDNESDAY, NOVEMBER 7**9:00 AM – 11:00 AM****NEW! W19: GETTING STARTED IN UNDERWATER WELDING**

Did you know that underwater welders are among the highest paid of all welders? Come learn from an international industry expert about the opportunities available and the skills you can develop.

1:00 PM – 2:30 PM**NEW! W21: OPPORTUNITIES IN WELDING**

Learn about different specialties within the welding industry that will help you find jobs quicker and earn more money.

PROFESSIONAL PROGRAM

Pick and choose between concurrent sessions for the latest in welding research and commercial developments. Pick a day or attend the entire three-day program.

TUESDAY, NOVEMBER 6**SESSION 1: ADDITIVE MANUFACTURING**

Session Chair: A. Black, Los Alamos National Laboratory

8:00 AM**Laser Additive Manufacturing of Grade 91 Steel for Radiation Tolerant Nuclear Components**

T. Lienert, S. Maloy, E. Aydogan, B. Eftink, T. Steckley, J. Weaver, and R. Pacheco, Los Alamos National Laboratory

8:20 AM**Manufacturing Tooling with Smart Wire-Arc Metal Large Scale Printing System**

A. Nycz, M. Noakes, C. Masuo, and L. Love, Oak Ridge National Laboratory

8:40 AM**Effect of Powder Characteristics and Delivery Method on the Quality of Manufactured Powder-Cored Tubular Wires**

E. Sullivan and S. Liu, Colorado School of Mines & Tech

9:00 AM**Microstructure and Mechanical Properties of Fe-10Ni Steel Additively Manufactured Using Laser Powder Bed Fusion (L-PBF)**

D. Bechetti and M. Sinfield, Naval Surface Warfare Center, Carderock Division, E. Barrick and J. DuPont, Lehigh University; R. Fonda, Naval Research Laboratory

9:20 AM**Effect of Sample Geometry and Process Parameters on Microstructure Evolution of Nickel-Base Superalloy Fabricated by Laser-Powder Bed Fusion Additive Manufacturing**

H. Song, EWI

9:40 AM**Microstructure and Mechanical Properties of WAAM Duplex Stainless Steel Tube**

F. Binesh, Clarkson University

10:00 AM**Wire-Based Additive Manufacturing of Aluminum Parts**

S. Liu, Miller Electric Manufacturing LLC

10:20 AM**Solidification Behavior of Additively Manufactured 304L Stainless Steel**

D. Wilson, Honeywell FM&T; S. Liu, Colorado School of Mines; J. Rodelas and M. Maguire, Sandia National Laboratories

10:40 AM**Recent Investigations into Additive Manufacturing for Navy Sustainment**

E. Reutzel, S. Brown, and R. Martukanitz, ARL Penn State / CIMP-3D; G. Welsh, NAVAIR - PAX River; M. Sapp, NAVAIR - FRC-East; E. Petran, NAVSEA - PHNSY

11:00 AM**Multi-Robot Collaborative Wire Arc Additive Manufacturing**

S. Chen, Beijing University of Technology

11:20 AM**Study on Thermogenesis Mechanism and Melting Behavior of Resistance Heating Wire Welding Forming**

C. W. Yuan, S.J. Chen, F. Jiang, No. 100 Ping Paradise, Chaoyang District, Beijing

TUESDAY, NOVEMBER 6**11:40 AM****Laser Hot Wire Processing for Cladding and Additive Manufacturing Applications**

M. Radke, The Lincoln Electric Company

SESSION 2: MODELING AND NUMERICAL ANALYSIS I

Session Chair: W. Zhang, The Ohio State University

8:00 AM**Formula for Predicting Weld Size, HAZ, Cooling Rate, and More**

P. Mendez, University of Alberta

8:20 AM**Development of Materials Evolution Modeling for ICME Framework**

E. Brizes, W. Zhang, and A. Ramirez, The Ohio State University Welding Engineering; T. Abke, Honda R&D Americas

8:40 AM**Engineering Expressions for Characteristic Values of Isotherms Based on a Moving Point Heat Source**

Y. Wang and P. Mendez, University of Alberta

9:00 AM**Deep Learning to Recognize Welding Microstructures in Structural Steels**

A. Hintze Cesaro and P. Mendez, Canadian Centre for Welding and Joining, University of Alberta; K. Wang, S. Shah, University of Alberta

9:20 AM**Numerical and Physical Simulation of High Frequency-Electric Resistance Welding (HF-ERW) Process**

R. Kannan and L. Li, Univ of Alberta; M. Rashid, A. Ray, and L. Collins, EVRAZ Inc. NA, Regina, Saskatchewan

9:40 AM**Uncertainty Analysis in Computational Weld Mechanics Based Simulations Due to Input Material Property Data**

C. Fisher and D. Bechetti, Naval Surface Warfare Center – Carderock; M. Schuh, Wheaton College; W. Zhang and J. Semple, The Ohio State University

10:00 AM**A Validated Computational Study on Heat Generation Mechanisms in Ultrasonic Welding Joint**

H. Huang, J. Chen, Y. C. Lim, Z. Feng, and X. Sun, Oak Ridge National Laboratory

10:20 AM**Multiscale Modeling and Damage Zone Analysis of Ni-Based Super Alloy Braze Joints for High Temperature Gas Turbine Applications**

J. Wildofsky, The Ohio State University

10:40 AM**Comparative Study on Implicit and Explicit FEM for Stress Analysis of Metal Additive Manufacturing**

H. Huang, J. Chen, and Z. Feng, Oak Ridge National Laboratory

11:00 AM**A Novel Approach to Predict Safe Welding Conditions to Avoid Cold Cracking of Welds**

R. El-Hebeary, Faculty of Engineering, Cairo University

11:20 AM**A Combined Solid-Shell Model for Predicting Weld Residual Stress on Large Ship Panels**

Y.-P. Yang and R. Dull, EWI; T.D. Huang and S. Scholler, Ingalls Shipbuilding

SESSION 3: WELDING METALLURGY

Session Chair: Boian Alexandrov, The Ohio State University

8:00 AM**Microstructure Characterization and Mechanical Property Evaluation of Fe-10Ni Steel Weld Metal**

E. Barrick and J. DuPont, Lehigh University; M. Sinfield, J. Farren, and D. Bechetti, Naval Surface Warfare Center, Carderock Division; P. Ray, Carpenter Technology Corporation

8:20 AM**Effects of Niobium on Weld Metal Microstructure and Properties of Submerged Arc Welds in X70 Steel**

T. Patterson and J. Lippold, The Ohio State University

8:40 AM**High Temperature Mechanical Behavior of Grade 91 Steel Dissimilar Metal Welds with Nickel Based Filler Metals**

M. Kuper and B. Alexandrov, Ohio State University; J. Burgess, GE Power

9:00 AM**Preliminary Investigations into LME Induced Failures in Advanced High Strength Steels**

D. Sage and C. Fink, Ohio State University

9:20 AM**Microstructural Evolution of Dissimilar Metal Welds Involving Grade 91**

S. Orzolek and J. DuPont, Lehigh University; J. Seifert, EPRI

9:40 AM**In-situ Observation of Creep-Fatigue Behavior of Grade 91 Weldments**

K. Zhang, W. Zhang, M. Mills, C. Whitt, and A. Kuprienko, Ohio State University

10:00 AM**Active Metal Brazing of SiC using CoSiVTi Braze Alloy**

J. Wei, S. Liu and J. C. Madeni, Colorado School of Mines

10:20 AM**Influence of Multi-Pass Weld Thermal Cycles on the Microstructure and Hardness of Maraging Steels 17-4 and 13-8+Mo**

J. DuPont, Lehigh University; R. Hamlin, Knolls Atmoc Power Lab; C. Robino, Sandia National Laboratories

10:40 AM**Impact of Multi-pass Welding Thermal Cycles on Root Pass Microstructure in Super Duplex Stainless Steel (UNS S32750) Welds**

T. Pickle, N. Henry and R. Baumer, LeTourneau University

PROFESSIONAL PROGRAM

11:00 AM**Fundamental Relationship between Indentation Techniques and Toughness Applied to Temper Bead Qualification**

B. Smith, Ohio State Welding Engineering

11:20 AM**Distribution of Mechanical Properties in Dissimilar Titanium-Stainless Steel Joints Determined through Nanoindentation**

B. Schneiderman, S. Gilbert, Z. Yu, and S. Liu, Colorado School of Mines; L. Lindamood and J. Gould, EWI; J. Li, A. Vivek, and G. Daehn, The Ohio State University

11:40 AM**Influence of Multiple Weld Thermal Cycles on Mechanical Properties of HSLA 100**

J. Duch and J. DuPont, Lehigh University

SESSION 4: SENSING AND CONTROL OF WELDING PROCESSES

Session Chair: Y. M. Zhang, University of Kentucky

2:00 PM**Real-Time Control of Critical Penetration in GTAW**

C. Li, J. Chen, and Y. Zhang, University of Kentucky; Y. Shi, Lanzhou University of Technology

2:20 PM**Defect Detection of GTAW from Reversed Electrode Images and Data Driven Models**

Z. Chen, J. Chen and Z. Feng, Oak Ridge National Laboratory

2:40 PM**Experimental Sensing of Fluid Flow and Temperature Profile in High Speed GMAW with External Magnetic Field**

C.S. Wu, Institute of Materials Joining, Shandong University

3:00 PM**Synchronous Fusion of Heterogeneous Data for Real-Time Weld Quality**

J. Steele and A. Ayoade, Colorado School of Mines

3:20 PM**Joint Base GTAW Weld Pool Penetration by Image Pattern Sensor**

Y-T. Chen, J. Chen, and Y.M. Zhang, University of Kentucky

3:40 PM**Microscopic Characterization and Correlation Analysis with On-line Welding Spectroscopy for Porosity of Aluminum Alloy in Pulsed GTAW**

Z. Zhang and G. Wen, Xi'an Jiao Tong University

4:00 PM**A Novel Piezo-Actuator Enhanced Resistance Spot Welding Process**

N. Wu, S. Chen, J. Xiao, and C. Hu, Beijing University of Technology; W. Zhang, The Ohio State University

4:20 PM**Identification of Weld Penetration Control System and Its Control Strategies for Pulsed Gas Metal Arc Welding**

W. Wang, Z. Wang, S. Hu, and Y. Cao, Tianjin University

4:20 PM**Identification of Weld Penetration Control System and Its Control Strategies for Pulsed Gas Metal Arc Welding**

W. Wang, Z. Wang, S. Hu, and Y. Cao, Tianjin University

4:40 PM**Virtual Reality Human Robot Collaborative Welding System**

Q. Wang and Y.M. Zhang, University of Kentucky

SESSION 5: SOLID-STATE PROCESSES

Session Chair: Z. Yu, Colorado School of Mines

2:00 PM**Friction Stir Welding of Hot Rolled and Annealed Steel for Military Applications**

W. Evans and A. Ramirez, The Ohio State University; M. McDonnell, U.S. Army TARDEC; M. Eff, EWI

2:20 PM**Axisymmetric Tube Shearing, Forming and Welding Realized by Vaporizing Foil Actuators**

J. Li, A. Vivek, and G. Daehn, The Ohio State University

2:40 PM**Dissimilar Friction Welding of Titanium Alloy to Steel Rods**

P. Li and H. Dong, School of Materials Science & Engineering, Dalian University of Technology

3:00 PM**Ultrasonic Welding of AZ31B Magnesium and Galvanized DP590 Steel**

J. Chen, H. Huang, Y. C. Lim, Z. Feng, and X. Sun, Oak Ridge National Laboratory

3:20 PM**Joining of Carbon Fiber Reinforced Composite to Magnesium Alloy by Friction Self-Piercing Rivet**

Y. C. Lim, C. Warren, J. Chen, and Z. Feng, Oak Ridge National Laboratory

3:40 PM**Role of Interlayer on Vaporizing Foil Actuator Welding of Aluminum-Stainless Steel**

S. Su and S. Chen, Beijing University of Technology; Y. Mao, A. Vivek, and G. Daehn, The Ohio State University

4:00 PM**Modeling of Severe Plastic Deformation in Mash Seam Welding using Improved Electro-Thermo-Mechanical Simulation**

A. Kuprienko, W. Zhang, M. Kimchi, and Y. Lu, The Ohio State University; B. Krakauer, A. O. Smith

4:20 PM**The Influence of the Offset for Preheating Arc on the Performance of Friction Stir Welding 2219-T87 Aluminum Alloy**

X. Li, S. Chen, and T. Yuan, Beijing University of Technology

4:40 PM**Atomic Scale Characterization of Al-Steel Welds Fabricated in the Solid State**N. Sridharan, J. Poplowsky, and H. Meyer, Oak Ridge National Laboratory; A. Vivek and G. Daehn
G. Daehn, The Ohio State University

PROFESSIONAL PROGRAM

SESSION 6: WELDABILITY STUDIES

Session Chair: C. Fink, The Ohio State University

2:00 PM

Stress Relief Cracking Susceptibility of High Temperature Alloys

R. Kant and J. DuPont, Lehigh University

2:20 PM

Effect of Interstitial Elements on the Solidification Behavior of High Chromium, Nickel Base Filler Metals

L. Aguilar and C. Fink, The Ohio State University; S. McCracken, Electric Power Research Institute

2:40 PM

Establishing an Industry Standard Practice for the Delayed Hydrogen Cracking Test

J. Rule and B. Alexandrov, The Ohio State University

3:00 PM

Evaluation of Stress Relief Cracking Susceptibility in Low Alloy Creep Resistant Steels

C. Sarich, The Ohio State University

3:20 PM

Hot Ductility Behavior of Selective Laser Melted 304L Stainless Steel

D. Gonzales and S. Liu, Colorado School of Mines; D. Javernick, Los Alamos National Laboratory

3:40 PM

Development of a New Weldability Test to Analyze Hydrogen-Induced Cracking Susceptibility in Resistance Spot Welds

M. Duffey, AK Steel Research

4:00 PM

Sulfide Stress Cracking Behavior of F22/625 and 8630/625 Dissimilar Metal Welds

T. Dai and J. Lippold, The Ohio State University

4:20 PM

Effect of Parameters on Susceptibility of Liquation Cracking of Al Alloys during Refilled Friction Stir Spot Welding

T. Yuan, W. Gong, and S. Chen, Beijing University of Technology

4:40 PM

Validation of Predictive Formula for the Development of Type 410 Stainless Steel for Hydro-processing Applications

B. Lawson and B. Alexandrov, The Ohio State University

WEDNESDAY, NOVEMBER 7

SESSION 7: PLENARY SESSION

Session Chair: Y. M. Zhang, University of Kentucky

8:00 AM

Plenary: Welding Research in Australia

J. Norrish, UOW

8:45 AM

John Elmer as a Scientist and Engineer

T. Eagar, MIT

SESSION 8: HIGH ENERGY DENSITY PROCESSES

Session Chair: W. Tan, University of Utah

9:40 AM

Considerations for Transitioning Electron Beam Welds to Equivalent Laser Beam Welds

A. Black, A. Duffield, G. Swank, P. Burgardt, and B. Preston, Los Alamos National Laboratory

10:00 AM

Weld Metal Composition and Solidification Mode Evolution during Laser Rewelding of Type 304L Alloys

J. Berger and J. Rodelas, Sandia National Laboratories; A. Ramirez, The Ohio State University

10:20 AM

Laser Welding of Multi-Cell Battery Packs

D. Susan, Da. Tung, J. Rodelas, and H. Pham, Sandia National Laboratories; P. Gorman, Retired, Sandia National Laboratories

10:40 AM

Multi-Physics Modeling of Laser Keyhole Welding of Dissimilar Metals

W. Tan, University of Utah

11:00 AM

Numerical Simulation on Competitive Growth of Columnar Crystal During Solidification Process of Al-Li Alloy Laser Welding

X. Zhan, L. Xia, Y. Kang, and H. Yu, Nanjing University of Aeronautics & Astronautics

11:20 AM

Welding Soft Magnetic FeCoV Alloy Hipercro® 50A

D. Tung, J. Rodelas, M. Maguire, and D. Susan, Sandia National Laboratories

11:40 AM

Laser Coupling Efficiency of Stainless Steel

XC Hawk and S. Liu, Colorado School of Mines; B. Simonds, National Institute of Standards and Technology; D. Javernick, Los Alamos National Laboratory

SESSION 9: HONORARY SYMPOSIUM FOR DR. JOHN ELMER - CONTRIBUTIONS TO THE WELDING METALLURGY OF STAINLESS STEELS

Session Chair: S. Kou, University of Wisconsin

9:40 AM

Welding Metallurgy of Stainless Steels

J. Elmer, Lawrence Livermore National Laboratory

10:20 AM

Dislocation Induced Long-Range Internal Stresses in Plastically Deformed Single-Phase Metals

M. Kassner, University of Southern California

11:00 AM

Microstructure Evolution and Solidification Cracking Susceptibility of Austenitic Stainless Steel Welds

S. Kou, University of Wisconsin-Madison

PROFESSIONAL PROGRAM

SESSION 10: ARC WELDING

Session Chair: W. J. Zhang, Gestamp

9:40 AM

Determining Allowable Hydrogen Contamination to Avoid Porosity in Aluminum Weld Metal

A. Barraza, C. Cross, and J. Martinez, Los Alamos National Laboratory

10:00 AM

Double-Sided Pulsed Laser Driven Metal Transfer in GMAW

Y. Jia, S. Chen, and J. Xiao, Beijing University of Technology

10:20 AM

Mass Transport in Deposited Cold Wire Arc Cladding Process

F. Hejripour, D. Valentine, and D. Aidun, Clarkson University

10:40 AM

Relating Weld Wire Surface Contamination to Porosity in GMA Aluminum Welds

A. Barraza, C. Cross, and J. Martinez, Los Alamos National Laboratory

11:00 AM

Rotating-Tungsten Narrow-Gap GTAW for Thick Plates

C. Jia, Q. Yan, B. Wei, and C. Wu, Shandong University

11:20 AM

Effect of Si, Ti, and W on Microstructure of Iron-Based Slag-Free Self-Shielded Flux-Cored Wire

D. Liu, Jiangsu University of Science and Technology, University of Alberta, and Zhengzhou Research Institute of Mechanical Engineering Co., Ltd.; L. Li, University of Alberta; M. Wu and P. Wei, Jiangsu University of Science and Technology; W. Long, Zhengzhou Research Institute of Mechanical Engineering Co., Ltd.

11:40 AM

Reflection Pattern and Weld Penetration in GTAW

J.S. Chen and Y.M. Zhang, University of Kentucky; and Z. Feng, Oak Ridge National Laboratory

SESSION 11: APPLIED TECHNOLOGY

Session Chair: J. Ramirez, Air Products

1:00 PM

Total Weld Quality Management System - Big Data Turned into Action

J. Noruk, Servo Robot Corp

1:20 PM

Low Hydrogen Welding Filler Metals for Pipelines

R. Fuchs, voestalpine Bohler Welding

1:40 PM

Impact of Exoskeletons on Welding Safety, Quality, and Productivity

T. Butler, Lean Steps Consulting, Inc.

2:00 PM

DeltaPoint Manifold with Water Extraction Technology (WET)

P. Hackett, Universal Flow Monitors

2:20 PM

A New Twist to Financial Payback for a Robotic Welding System Robotics System Integration, Cost Justification

Z. Michael, Yaskawa America Inc.

2:40 PM

Timelines in Field Welding Drive Need for Versatile and Portable Products

A. Pfaller, Miller Electric Manufacturing LLC



3:00 PM**How To Keep Stainless... 100% Stainless**

R. Sauders, voestalpine Bohler Welding USA, Inc.

3:20 PM**Efficient Capturing and Extraction of Welding Fumes**

J. Zullo, Keller USA, Inc.

4:00 PM**Automated 2D/3D Sensing for Remote Laser Welding Applications**

T. Bautze, Blackbird Robotersysteme GmbH

4:20 PM**Improve Productivity by Welding with AC Pulse on Thin Aluminum**

M. Klee, Lincoln Electric Company of Canada

4:40 PM**Rebuilding America**

R. Blythe, Georgia Trade School

SESSION 12: HONORARY SYMPOSIUM FOR DR. JOHN ELMER - CONTRIBUTIONS TO ADVANCED IN-SITU CHARACTERIZATION

Session Chair: G. Wood, Apollo Machine & Welding Ltd

2:00 PM**Contributions of John Elmer**

T. DebRoy, The Pennsylvania State University

2:40 PM**Low-Temperature Diffusion Bonding - A Novel Approach for Joining of Challenging Materials**

P. Mayr, Technische Universitat Chemnitz

3:20 PM**Mapping Residual Stress in Dissimilar Metal Welds using Neutron**

J. Bunn, C. Fancher, A. Payzant, D. Aidun, and R. Minneci, Oak Ridge National Laboratory

4:00 PM**Experimental Characterization and Modeling of Heat-Affected Zone Softening in Resistance Spot Welded Advanced High-strength Steels**

Y. Lu, M. Kimchi, and W. Zhang, The Ohio State University; T. Abke, Honda R&D Americas, Inc.

SESSION 13: MODELING AND NUMERICAL ANALYSIS II

Session Chair: A. Ramirez, The Ohio State University

1:00 PM**A CalPhaD-Based Strategy for Modelling Microstructure during Build and Post-build Heat Treatments of Additively Manufactured Parts**

G. Faria and A. Ramirez, Dept. of Materials Science and Eng. - The Ohio State University

1:20 PM**Modeling and Advanced Characterization of Nickel Base Alloys for Nuclear Propulsion Applications**

A. Fraser and J. DuPont, Lehigh University

1:40 PM**Non-equilibrium Melting Model of Wires in Laser-Assisted AC Inter-wire Indirect Arc Welding**

L. Wang, Hebei University of Science and Technology; S. Chen and J. Xiao, Beijing University of Technology

2:00 PM**Scaling of Heat and Mass Flow in Marangoni-Driven Weld Pools**

D. Havrylov and P. Mendez, Canadian Centre for Welding and Joining

2:20 PM**Scaling, Asymptotics, and Blending of the Gaussian Moving Heat Source**

Y. Lu and P. Mendez, University of Alberta

2:40 PM**Study and Optimization against the Gravity Effect on Variable Polarity Plasma Arc Horizontal Weldings**

Z. Yan, Beijing University of Technology

3:00 PM**Thermo-Mechanical Effects of Non-Ideal Geometry in Circumferential Joints**

M. Grams and P. Mendez, Canadian Centre for Welding and Joining, University of Alberta

3:20 PM**Numerical Analysis of Weld Undercut Formation during High Speed GMAW**

J. Chen, R. Zong, and C. Wu, Shandong University

3:40 PM**Welding Metallurgy and Weldability of High-Temperature HEA System AlCoCrCuFeNi**

A. Martin and C. Fink, The Ohio State University

4:00 PM**Exploring CO₂ Rapid Cooling Process for Residual Stress/Distortion Reduction in Dissimilar Metal Welds**

H. Eisazadeh, County College of Morris; A. Payzant, P. Cornwell, and J. Bunn, Oak Ridge National Laboratory; J. Goldak, Carleton University; D. Aidun, Clarkson University

4:20 PM**Design, Fabrication, and Characterization of Graded Transition Joints**

J. DuPont, Lehigh University; J. Galler, Pratt & Whitney

THURSDAY, NOVEMBER 8

SESSION 14: WELDING METALLURGY AND WELDABILITY STUDIES

Session Chair: W. Tang, Oak Ridge National Laboratory

8:00 AM

Kinetics and Microstructural Aspects of the Isothermal Decomposition of Austenite in a P92 Steel

A. Hintze Cesaro, Canadian Centre for Welding and Joining;
M. Luppo and C. Danon, National Commission of Atomic Energy

8:20 AM

Metallic Bump Assisted Resistance Spot Welding (MBarSW) of Dissimilar Materials: Part I: Printing of Metallic Bump

G. Zhang, Y. Li, and Z. Lin, School of Mechanical Engineering, Shanghai Jiao Tong University

8:40 AM

Metallic Bump Assisted Resistance Spot Welding (MBarSW) of AA6061-T6 and Bare DP590: Part II: Joining Mechanism and Joint Property

G. Zhang, Y. Li, and Z. Lin, School of Mechanical Engineering, Shanghai Jiao Tong University

9:00 AM

Microstructure Evolution and Solidification Cracking Susceptibility of Austenitic Stainless Steel Welds

P. Yu, J. McCarthy and S. Kou, University of Wisconsin;
K. Thompson, Thermo Fisher Scientific

9:20 AM

Temper Bead Welding

J. Stewart, The Ohio State University

9:40 AM

Thermal Faceting in Austenitic Weld Metal During Multipass Welding

S. Luther and B. Alexandrov, The Ohio State University

10:00 AM

Practical Considerations Required for Proper Fabrication & Repair Welding of Duplex and Superduplex Stainless

J. Stoll, voestalpine Bohler Welding USA, Inc.

SESSION 15: HONORARY SYMPOSIUM FOR DR. JOHN ELMER - CONTRIBUTIONS TO HIGH ENERGY DENSITY WELDING

Session Chair: To Be Announced

8:00 AM

The Effect of Different Environments, such as Reduced Pressure or a Change on Shielding Gas, on Keyhole Porosity and Weld Geometry in Titanium, Nickel, and Stainless Steel

H. Carlton, J. Elmer, and J. Vaja, Lawrence Livermore National Laboratory

8:40 AM

Beam Characterization and Defect Formation in High Energy Density Welding

T. Palmer, Pennsylvania State University

9:20 AM

Characterization of High Energy Beams for Materials Processing within the U.S. Department of Energy: Invention, Innovation and Application

J. Milewski, Los Alamos National Laboratory

10:00 AM

Advances in Micro Welding by Laser or Electron Power Beams in Vacuum

M. Muecke, FOCUS GmbH

10:40 AM

Tribute to John Elmer

M. Maguire, Sandia National Laboratories

SESSION 16: CLADDING AND DISSIMILAR JOINING

Session Chair: G. Wood, Apollo-Clad Laser Cladding

8:00 AM

Modelling Bead Geometry in Coaxial Laser Cladding Using a Fiber Laser for Nickel Tungsten Carbide Overlays

G. Wood and D. Hamre, Apollo-Clad Laser Cladding

8:20 AM

Evaluation of Low-Cycle Fatigue Resistance at Elevated Temperatures of External Weld Repairs in Coke Drums

S. Romo and A. Ramirez, The Ohio State University

8:40 AM

Low Current Cladding of Inconel 625 Alloy

B. Silwal, Georgia Southern University

9:00 AM

Characterization and Testing of Low Alloy Steel Girth Welds on Internally Clad X65 Pipes

A. Alvarez and B. Alexandrov, The Ohio State University

9:20 AM

Relationship between Heat Input, Microstructures and Mechanical Behavior of Aluminum-Stainless Steel TIG Braze Welding Joint

H. He and P. Mendez, University of Alberta

9:40 AM

Modelling of Mixing and Unmixed Zone in 410 Stainless Steel/Inco 718 Dissimilar Metal Welds

F. Hejripour, D. Valentine, and D. Aidun, Clarkson University

10:00 AM

Thermal Spray Cladding Optimization for Steel Drill Pipes

W. Ott, S. Liu, and Z. Yu, Colorado School of Mines;
H. Nguyen and J. Scott, Devasco International, Inc.

AWS POSTER SESSION

The AWS Poster Session is an integral part of the AWS Professional Program. Graphic displays of technical achievements are presented for close, first-hand examination in the Poster Session.

Posters present welding results and related material, are best communicated visually, as well as research results that call for close study of photomicrographs, tables, systems architecture, or other illustrative materials.

EDUCATION SESSIONS

TUESDAY, NOVEMBER 6 - WEDNESDAY, NOVEMBER 7

W28: NATIONAL CENTER FOR WELDING EDUCATION AND TRAINING, WELD-ED & AWS EDUCATION SERVICES

The National Center for Welding Education & Training (Weld-Ed) is open to secondary, post

secondary, and industry instructors/faculty/trainers. Weld-Ed is a dynamic partnership between industry, community and technical colleges, universities, the American Welding Society, and government with a mission to improve the quality and quantity of welding technicians to meet ongoing workforce needs.

AWS SOCIETY EVENTS

MONDAY, NOVEMBER 5

All of the AWS programs on Monday, November 5 take place at the AWS Headquarters Hotel, Hilton Atlanta, Grand Ballroom.

7:00 AM - 8:30 AM

W29: AWS PRAYER BREAKFAST

This year's speaker at the AWS Prayer Breakfast will be Mr. Scott Funderburk, Director of Global Product Management, for ESAB Welding and Cutting. The Prayer Breakfast will be held in Rooms 204/205 at the Hilton.

9:00 AM - 10:00 AM

AWS OPENING SESSION

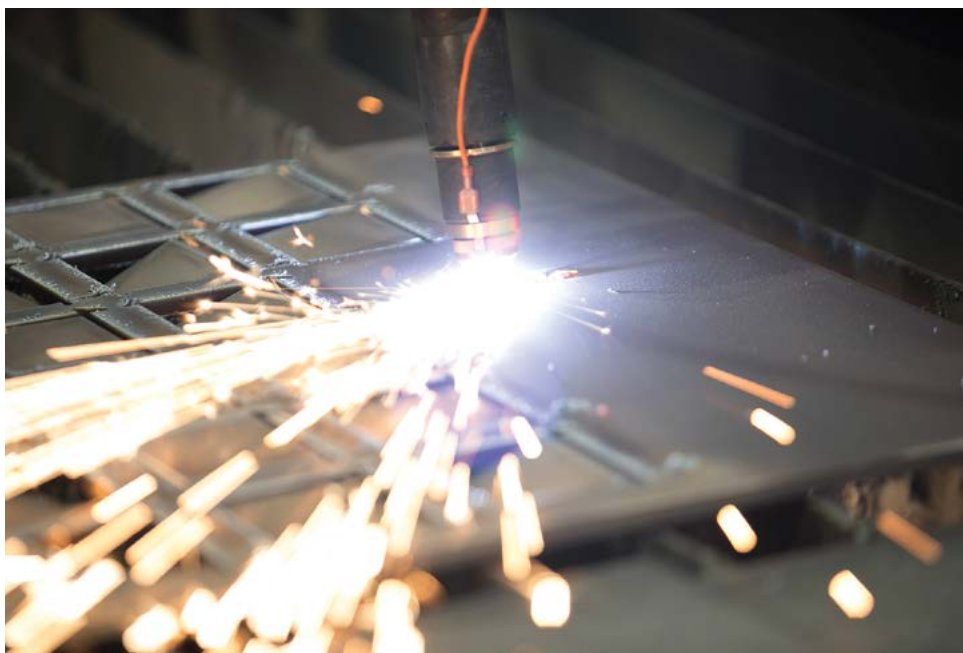
During the AWS Opening Session and the 99th Annual Business Meeting, 2018 AWS President

Dale Flood will give the Presidential Report and Thomas J. Lienert, PhD, will be inducted as the AWS President for 2019. Following the induction, the 2018 Class of AWS Counselors and Fellows will be introduced. This meeting is open to all AWS Members and show registrants.

10:30 AM - 11:30 AM

COMFORT A. ADAMS LECTURE

The Comfort A. Adams lecture this year is titled "Science-Based Approaches to Repair Welding Technology for Dissimilar Welded Joints in Nuclear Power Plants" by Kazutoshi Nishimoto. Kazutoshi Nishimoto is a Fellow of the International Institute of Welding and an honorable member of the Japan Welding Society, JWS.



AWS SOCIETY EVENTS

6:30 PM – 9:00 PM**AWS OPENING RECEPTION**

On behalf of the AWS President and First Lady, we invite you to attend the AWS Opening Reception. This reception is the official kickoff to FABTECH 2018 for AWS members. Attendees will have the opportunity to shake hands with our AWS Officers and CEO, as well as network with AWS members from across the globe. Drink tickets will be provided to all reception attendees.

TUESDAY, NOVEMBER 6**12:00 PM – 2:00 PM****AWS AWARDS/AWS FOUNDATION LUNCHEON**

Join an assembly of distinguished award presenters, recipients, and guests for a well-paced ceremony and a delicious lunch. The cost for attending the ceremony is \$30 and is open to all registrants.

2:00 PM – 3:00 PM**AWS NATIONAL NOMINATING COMMITTEE - OPEN MEETING**

AWS Members are requested to submit their recommendations for National Officers to serve during 2020. Nominations must be accompanied by 20 copies of biographical material on each candidate, including a written statement by the candidate as to his/her willingness and ability to serve if nominated and elected.

WEDNESDAY, NOVEMBER 7**10:00 AM****R.D. THOMAS, JR. INTERNATIONAL LECTURE**

This year's Lecture will feature Jérôme Dietsch. Mr. Dietsch serves in the Information Department as Standardization Officer at Institut de Soudure, for the French Welding Institute.

10:30 AM (immediately following the R.D. Thomas, Jr. International Lecture)**AMERICAN COUNCIL OF IIW**

American Council of the IIW is the meeting of the U.S. member body of the International Institute of Welding.

12:00 PM – 2:00 PM**AWS EXCELLENCE IN WELDING AWARDS CEREMONY AND LUNCHEON**

By invitation only.

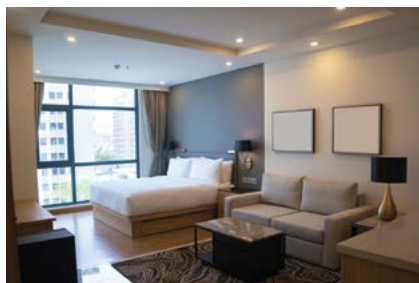
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AMADA is committed to the engineering and manufacturing of the world's most precise and productive machine tools. Our most popular series of laser machines and advanced automation systems are manufactured in California — providing localized manufacturing to meet the specific design needs of North American fabricators.

Laser cutting systems currently being manufactured in California include the ENSIS Series and the LCG Series. AMADA's ENSIS Fiber Laser technology provides continuous processing of thin-to-thick materials without requiring a lens change or additional setup. The LCG Series combines optimal power and cutting speed to efficiently process a wide variety of material types and thicknesses.

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AMADA understands the distinct challenges today's manufacturers face. That's why we provide a complete line of laser cutting systems that range from 3kW to 9kW. No other company is better positioned to provide you with the optimal machine tool solutions needed to successfully compete.



Laser Manufacturing Facility in Brea, CA



AMADA's global network of manufacturing bases includes facilities in North America, Europe, China and Japan.



The ENSIS Series is available in 3015 and 4020 models and can be configured with CL automation options to best suit your specific manufacturing needs.



The LCG Series is also available in 3015 and 4020 models and can be configured with CL automation options to best suit your specific manufacturing needs. (Shown with AMS 3015 CL Cycle Loader)

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