DE-FOA-0001263 MANUFACTURING INNOVATION INSTITUTE FOR SMART MANUFACTURING: ADVANCED SENSORS, CONTROLS, PLATFORMS, AND MODELING FOR MANUFACTURING

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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
EWI	Jesse Bonfeld	Not for Profit	Materials Joining and Allied Technologies	EWI provides manufacturing process development services to a broad range of industries, focused on the joining of materials and allied technologies. We offer engineering support services, applied R&D, strategic services and training in various materials joining disciplines include additive manufacturing, ultrasonic processes, welding processes, forming, microjoining, brazing and soldering. We also provide development services for allied technologies including advanced machining, flexible automation and robotics, NDE, modeling and simulation, and structural integrity testing.	Address: 1250 Arthur E. Adams Dr, Columbus, OH 43221 Email: jbonfeld@ewi.org Phone: (703) 665-6604
Phinix,LLC	Dr. Subodh Das	Small Business (For Profit)	1. 40+ years of technical expertise in entire manufacturing (extraction, fabrication and recycling) eco system of light metals of aluminum, magnesium and titanium 2. PI of over 10 large multi-disciplinary /academic-manufacturing companies-DOE labs over last 15 years in wide range of metals and materials manufacturing technology 3. Currently a member of several DOE (CMI at Ames in Iowa , IACMI at Knoxville in Tennessee), DoD (LIFT at Detroit in Michigan) and NSF (CR3 at WPI in Massachusetts) research centers	1. Contacts and access to research personnel and facilities in academic, industrial and government labs for subject domain of this solicitation - advanced sensors, controls, platforms, and modeling. 2. 15+ years' experience in writing and managing DOE research grants and contracts.	Address: P.O. Box 11668 , Lexington, KY 40577 Email: skdas@phinix.net Phone: 859-619-8386
Nidec Motor Corporation	Dave Bolton	Public Company	High efficiency electric AC & DC motors & controls	Design, testing & manufacturing of high quality advanced, high efficiency motors and controls (integrated and remote) for all types of residential, commercial & industrial applications.	Address: 8050 W. Florissant Ave., St. Louis, MO 63136 Email: dave.bolton@nidec-motor.com Phone: 314-595-8375

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The University of Alabama; Alabama Industrial Assessment Center	Keith A. Woodbury	Non-profit	Industrial Energy Efficiency	University of Alabama has an established collaborative team focused on Improved Manufacturing Efficiency and Smart Manufacturing: Ajay Agrawal (Combustion), Yuebin Guo (Energy-Efficient Manufacturing), Fei Hu (Sensor Networks and Development), Zheng O'Neill (Building Energy and Smart Buildings), Susan Vrbsky (Data Analytics), Keith Woodbury (Industrial Energy Efficiency). Team capabilities are broad and varied ranging from detailed simulation/modeling and experimental verification, database development and data mining, sensor development and testing, to economic evaluation of energy-saving impacts. An Industrial Assessment Center has operated at UA for about 10 years which provides a base of previous industrial energy efficiency efforts.	Address: 359 H M Comer Hall 245 7th Ave Box 870276 Tuscaloosa, AL 35487-0276 Email: keith.woodbury@ua.edu Phone: (205)348-1647
XG Sciences, Inc.	Rob Privette	Bulk graphene material manufacturer	Graphene and graphene-based materials	100 T/year graphene powder production, highly conductive graphene-based inks/ coatings/ greases, highly conductive graphene-based papers	Address: 3101 Grand Oak Drive, Lansing MI 48911 Email: r.privette@xgsciences.com Phone: 517-999-5444
RTI International	Samuel Field	Not-for-profit research institute, large	Sensor Design and Development, Innovation-Led Economic Development, Workforce Development.	RTI is a not-for-profit research institute with practice areas spanning many technical and scientific disciplines, including advanced hybrid sensor development, microsystem integration and packaging, thermoelectric materials and device design, biofuels production and test bed facility, process modelling and simulation, carbon mitigation, energy economics and public policy, industrial water, technology commercialization, data collection and management, technology transfer, and the development of regional industry clusters.	Address: 3040 Cornwallis Road, Research Triangle Park, NC 27709 Email: sfield@rti.org Phone: 919-248-4211

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The University of Alabama	Yuebin Guo	Not-for-profit public higher education	*Energy-efficient manufacturing processes *Multi-scale and multi-physics high fidelity modeling & simulation of unit process *Real-time measurement & modeling of energy consumption at machine & process levels	***Development of energy efficient manufacturing processes:*** research focuses on sustainable manufacturing processes. A series of energy-efficient manufacturing processes have been successfully developed to demonstrate great potentials to significantly reduce energy consumption in various applications including: (1) ***Energy-efficient hard cutting*** (hard turning and hard milling) to replace energy intensive abrasive processes (e.g., grinding) and electric discharge machining in tool manufacturing (e.g., bearings, molds/dies); (2) ***Energy-efficient cryogenic burnishing*** to replace energy-intensive process chain of heat treatment and finish machining in turbomachinery manufacturing (e.g., jet engine components) and medical device manufacturing (implants); and (3) ***Hybrid "laser metal deposition-finishing"*** to replace energy-intensive welding process for adaptive remanufacturing of high value components. ***Multi-scale and multi-physics high fidelity modeling & simulation of unit process:*** Unit manufacturing process, whether it is subtractive machining or laser additive manufacturing (AM), involves multi-scale process mechanics, material deformation, phase transformation, and coupling multi-physics phenomena. It is a great challenge to develop a high fidelity process model to predict part quality efficiently. Dr. Guo has developed a general method of multi-scale and multi-physics high fidelity modeling & simulation for various unit processes. Two representative successful applications include: (1) ***Multi-scale predictive model of precision cutting*** to predict residual stress by crossing micro-scale single cutting path to macro-scale machined component; and (2) ***Temperature-thread multi-scale modeling of selective laser melting (SLM)*** for efficient prediction of part distortion from micro-scale laser scan, meso-scalelayer hatch, to macro-scale part build-up. ***Real-time measurement & modeling of energy consumption and energy efficiency:*** Energy consumption in manufacturing has a significant impact on manufacturing cost and environmental impact. With the state-of-the-art Fluke power meter, real-time energy consumption and energy efficiency at the machine and process levels can be measured and modeled. Power and energy consumption characteristics and the relationships between power, energy consumption, and process parameters in unit process can be established. In addition, the emissions and environmental impact induced by machine energy consumption and the tooling's embodied energy are calculated and modeled. Two ongoing initiatives include: (1) ***Energy consumption and process sustainability*** of energy-efficient hard cutting vs. energyintensive grinding; and (2) ***A holistic predictive tool to assess, compare, and minimize energy consumption and environmental impact*** in laser assistive manufacturing (e.g., SLM, SLS) vs. traditional manufacturing routes (e.g., machining, injection molding).	Address: 7th Ave., Tuscaloosa, AL 35487 Email: yguo@eng.ua.edu Phone: 205-348-2615

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University of Texas Rio Grande Valley	Dr. Anil K. Srivastava	University (Academic and Research Institution)	Intelligent Manufacturing Systems with Sensors Application	Dr. Srivastava is the Professor at Manufacturing and Industrial Engineering Department and also the Director of Rapid Response Manufacturing Center (RRMC) at UTRGV. The center has recently purchased new Precision CNC Milling Machine, Precision, CNC Turning Center, and Precision CNC Surface Grinding Machine. These machines will be interfaced with different sensors for on-line data acquisition, process monitoring and control. The Kistler dynamometers and accessories have already been purchased for measuring on-line forces and torque during turning, milling, drilling and grinding processes. Other sensors such as AE, Vibration, Thermal, Power and Proximity sensors will also be interfaced on these machines for on-line measurements, process monitoring and controls. The center also has several 3-D printing machines and recently purchased Renishaw AM-250 Additive Manufacturing Machine for metals. The center also has access to facilities for metallurgical studies such as SEM, hardness tester, and instruments for advanced metrology.	Address: 1201 West University Drive, Edinburg, TX 78539-2999 Email: anil.srivastava@utrgv.edu Phone: (956) 665-8947
National Energy Technology Laboratory (NETL)	Anthony Armaly & Paul Ohodnicki	National Laboratory (Fossil Energy)	In-situ monitoring of processes with a specific focus on high temperature chemical and physical sensing	We have very unique laboratory and pilot-scale facilities to leverage in this area as well as a broad portfolio of IP that has been developed in the past 5 years.	Address: Pittsburgh, PA Email: anthony.armaly@netl.doe.gov paul.ohodnicki@netl.doe.gov Phone- 412-386-6040
Stratasys Direct Manufacturing	Eric Jackson	Additive Manufacturing	Additive Manufacturing and 3D Printing	Stratasys Direct Manufacturing offers proven 3-D printing and advanced manufacturing solutions that allow organizations to innovate rapidly and move to market quickly. Services include additive manufacturing, cast urethanes, CNC machining, tooling, injection molding, and professional finishing for high-quality plastic and metal parts and prototypes. ISO 9001 and AS9100 certified.	Address: 815 Kirkley Blvd. Belton, TX 76513 Email: eric.jackson@stratasysdirect.com Phone: 254-933-1000

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SUNY Polytechnic Institute	Eric Eisenbraun	University/academic institution	Materials fabrication, manufacturing and prototyping	see http://suncycnse.com SUNY Poly CNSE's Albany NanoTech Complex is a fully-integrated research, development, prototyping, and educational facility that provides strategic support through outreach, technology acceleration, business incubation, pilot prototyping, and test-based integration support for onsite corporate partners. SUNY Poly CNSE is located within a 1,300,000 square foot complex that houses the most advanced 200mm/300mm wafer facilities in the academic world, including over 140,000 square feet of Class 1 capable cleanrooms equipped with 300mm wafer processing tools. The complex incorporates state-of-the-art, R&D and prototype manufacturing infrastructure for nano/microelectronics, nanophotonics and optoelectronics, nano/micro systems (MEMS) and nanopower science and technology. SUNY Poly CNSE also manages and supports the Smart Cities Technology Innovation Center (SCiTI) at Kiernan Plaza in Albany, the Solar Energy Development Center in Halfmoon, the Photovoltaic Manufacturing and Technology Development Facility in Rochester, and the Smart System Technology and Commercialization Center (STC) in Canandaigua. SUNY Poly co-founded and manages the Computer Chip Commercialization Center (Quad-C) on its Utica campus, and is lead developer of the Marcy Nanocenter site, as well as the Buffalo High-Tech Manufacturing Complex, Buffalo Information Technologies Innovation and Commercialization Hub, and Medical Innovation and Commercialization Hub. Faculty and students have access to leading edge tools in metrology, lithography including EUV lithography, front-end-of-line and back-end-of-line processing. Qualified instructors and trained technicians help students and faculty master the tools and equipment and carry out their own experiments.	Address: SUNY Polytechnic Institute 255 Fuller Rd Albany, NY 12203 Email: eeisenbraun@sunypoly.edu Phone: 518-469-2777

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Ames Laboratory	Thomas Lograsso, Deputy Director	DOE National Laboratory	Materials Design and Discovery, Sensor materials, modeling and simulation, decision science	Powder-to-Parts Facility is a state-of-the-art Ames Laboratory center that bridges advanced powder making technologies (unique within the DOE), additive manufacturing (AM), and other net-shape parts fabrication methods, with non-destructive evaluation capabilities. This unique research and prototyping facility offers custom powder making, powder-based parts fabrication, and parts qualification, catalyzing rapid manufacturing implementation. Theory-Driven, Rapid Experimental Alloy Development (TD-READ) is the unique Ames Lab capability to integrate two well-developed facilities: (1) a high-quality bulk-alloy synthesis followed by materials processing (for films, powders, single crystals, and bulk castings), located within our Materials Preparations Center, and detailed characterization within our Sensitive Instruments Facility; and (2) our well-known center of expertise for atomic to meso-scale computational and modeling that drives the high-throughput experiments. Materials Preparation Center - MPC offers a wide range of services for those involved in metallurgical, materials science and engineering, materials chemistry, and materials physics involving the use high purity rare earth metals, high purity alloys and intermetallic compounds, and single crystals. With capabilities ranging from small-scale arc casting and single crystal preparation to ingot casting with vacuum induction melting (VIM), casting and plasma melting (PAM), this breadth of capabilities positions MPC to assist research groups in many areas. MPC specializes in preparing lab scale alloys and can cast ingots up to 5" in diameter by 17" long. Post alloying MPC can fabricate samples to specific forms with rolling, swaging, wire drawing, and EDM cutting. With metallography, analytical, and characterization resources to complement our fabrication capabilities, MPC is capable of addressing projects from many directions.	Address: 311 TASF, Ames Laboratory, Ames, IA 50014 Email: lograsso@ameslab.gov Phone: 515-294-5772

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San Diego State University	Chris Mi	University	power electronics systems, sensors, actuators, smart health, autonomous vehicles, wireless power transfer technology and manufacturing	The department of Electrical and Computer Engineering at San Diego State University has expertise in power electronics systems, smart health, sensors, implantable medical devices, wireless communications, wireless power transfer technology, autonomous driving, smart grid, and power and energy. It is a historical minority serving institution. We have excellent faculty members who can contribute to the success of the proposal.	Address: 5500 Campanile Drive, E-426A; San Diego, CA 92182-1309 Email: mi@ieee.org Contact Phone: T: (619) 594-3741; M: (734)765-8321
NineFX, Inc.	Drew Varner	Small Business (SDVOSB)	Wireless sensors, low-power sensors, Cloud-processing, complex event processing	We are an SBA-certified HUBZone and Dept. of Veterans Affairs-certified service-disable veteran-owned small business (SDVOSB) focused on R&D, wireless sensors and Cloud-data processing. We have experience developing Internet of Applications for one of the largest wireless network device manufactures. We wireless sensor and Cloud-processing initiatives with USDA and DOE.	Address: 2744 Heyward St, Columbia, SC 29205-2524 Email: drew.varner@ninefx.com
PARC, a Xerox Company	Scott Elrod, Vice President	Large Company	PARC is heavily involved in advanced manufacturing, with investments in digital design tools, new additive manufacturing technologies, printed electronics, roll-to-roll processing, sensors and systems that integrate these capabilities.	PARC is a founding member of the DMDI Manufacturing Institute, a key contributor to the Flextech-led NNMI, and a member of America Makes. Our chief interest lies in the end-to-end integration of design tools, simulation models and inline metrology with real-time feedback and learning to mitigate manufacturing errors.	Address: 3333 Coyote Hill Road, Palo Alto, CA 94304 Email: elrod@parc.com Phone: (650) 812-5060
University of Arkansas	Wenchao Zhou	Public University	3D printing processes, including inkjet and selective sintering	In-house software capable of simulating inkjet deposition process ~100 times faster than commercial software; computational models for simulating inkjet and selective sintering processes; computational design and optimization algorithms; expertise in building a 3D printer from scratch (have done one and building more), including mechanical, electrical, and software systems; building experimental setup for studying inkjet and selective sintering processes.	Address: 863 W. Dickson St., Fayetteville, AR Email: zhouw@uark.edu Contact Phone: 479-575-7250

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Digital Manufacturing and Design Innovation Institute (DMDII)	Dean Bartles, Executive Director DMDII and Chief Manufacturing Officer UI LABS	Non-profit consortium	DMDII facilitates collaborative research amongst its 140+ consortium members from academia and industry on Digital Manufacturing and Design. Digital Manufacturing and Design consists of an integrated suite of tools that work with product and process definition data to support tool design, manufacturing process design, visualization, modeling and simulation, intelligent machining, data analytics, smart manufacturing, and other analyses necessary to optimize the manufacturing process, product delivery, product sustainment, and end of life resolution. Within Digital Manufacturing and Design, DMDII has three technical thrust areas: 1. Advanced Analysis – The use of computational analysis techniques of structural systems in operating environments. 2. Advanced Manufacturing Enterprise (AME) – AME is a set of robust, digitally driven manufacturing strategies and integrated capabilities that dramatically reduce the cost and time of producing complex systems in today's global manufacturing enterprises. 3. Intelligent Machining – An intelligent machine is a single device or set of devices comprised of an interoperable framework of hardware, sensors, and software solutions that support process planning and management of manufacturing processes across the platform. DMDII is also able to draw on expertise from its partner organizations, UI LABS and City Digital. UI LABS solves large-scale societal challenges by forming industry-driven consortia to close the gap between innovation and commercialization. City Digital focuses on innovation at the physical-digital convergence in Smart Cities with emphasis in four focus areas: physical infrastructure, energy management, transportation, and water & sanitation.	• R&D o DMDII has developed a Digital Manufacturing and Design Technology Roadmap (TR) and Strategic Investment Plan (SIP) with input from thought leaders in industry, academia, and government; the process DMDII used to create the TR and SIP could save potential bidders startup time and cost o DMDII has a state-of-the art, 94,000 ft.2 facility for project teaming and technology demonstration, including a 24,000 ft.2 developed manufacturing floor with advanced manufacturing equipment o DMDII has a proven, documented R&D project management process for conducting sole source and competitive project calls, evaluating proposals, completing cost analyses, and determining fairness and reasonableness for cost proposals o UI LABS has generated and negotiated contracts with large and small industry organizations, academic institutions and non-profit organizations o DMDII has released 5 project calls spanning 18 topics, held 4 successful project call workshops in multiple locations, and held numerous events for our members in our state-of-the-art facility o DMDII has a cloud based platform, the Digital Manufacturing Commons, which is the result of millions of dollars in R&D and could be used as a Smart Manufacturing platform o DMDII has managed and maintained compliance with our Government Cooperative Agreement and will use similar techniques to ensure a team fulfills its requirement to coordinate with DMDII to ensure respective research agendas are not duplicative • Consortium Management / Operations o Over the past 18 months, DMDII has developed a membership agreement with buy-in from all major stakeholders (membership legal entities, government, etc.); this agreement has the potential to save bidders months of startup time and cost o UI LABS and DMDII have built expertise in consortium-management related processes (e.g., Deltek accounting system, membership invoicing and tracking, etc.) and government compliance, including government compliant financial and contractual infrastructure (e.g., Deltek and SOPs) and a team that is experienced in facilitating various federal agency audits	Address: 1415 North Cherry Avenue, Chicago, IL, 60642 Email: Dean.Bartles@uilabs.org Phone: (727) 251-7671 (mobile)

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Pellissippi State Community College	David Cazalet, Jr.	Public, two-Year College	Advanced Manufacturing workforce training	Pellissippi State Community College (PSCC) in Knoxville, Tennessee, a leader in advanced manufacturing workforce training, offers a two-year associate degree in Engineering Technology. Concentrations include Automated Industrial Systems, Civil Engineering, Electrical Construction Management, Electrical Engineering, Industrial Maintenance, Manufacturing and Mechanical Engineering. The College completed and opened a new Megalab in September of 2015 (http://tinyurl.com/MEGALAB-PSCC). The PSCC Megalab houses state-of-the-art equipment for teaching advanced manufacturing, additive manufacturing (3D printing), homeland security, and sustainable living programs. PSCC is currently managing more than $ 12M in federal advanced manufacturing grants including: the Advanced Manufacturing Jobs and Innovation Accelerator Challenge, Advanced Manufacturing and Prototyping Center of East Tennessee (AMP!) (http://tinyurl.com/PSCC-AMP), the National Aeronautics and Space Administration (NASA) Office of Education Consortium, National Space Grant College and Fellowship Program, Tennessee Community College Space Grant Consortium (http://tinyurl.com/PSCC-NASA), and two U.S. Department of Labor, Trade Adjustment Act and Community College and Career Training (TAACCCT) programs: the Multi-State Advanced Manufacturing Consortium (M-SAMC) (http://tinyurl.com/PSCC-M-SAMC) which identifies the competencies needed for automotive manufacturing line jobs and the Southeastern Economic and Education Leadership Consortium (SEELC) (http://tinyurl.com/PSCC-SEELC) which focuses on welding/fabrication, machining, and advanced manufacturing. PSCC is the lead institution for the three-state, six-institution SEELC grant. Members of the College's Engineering faculty are certified and authorized by the American Welding Society, FANUC Robotics, and the National Institute for Metalworking Skills to offer their nationally-recognized credentials to students who successfully complete training.	Address: 10915 Hardin Valley Road, Knoxville, Tennessee, 37933 Email: grants@pstcc.edu Phone: (865) 539-7350

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Northeastern University	Akram Alshawabkeh, Associate Dean for Research, College of Engineering	Private non-profit university	Northeastern University offers expertise and resources that could significantly contribute to the advancement of the technical objectives of the Innovation Institute for Smart Manufacturing. 90+ Northeastern faculty, spread across the College of Engineering, College of Computer and Information Sciences, and School of Business, have strong credentials in manufacturing, energy manufacturing, advanced sensors, standardized open software and communication platforms, real-time data analytics, and control systems. The research centers that support activities in these technical areas include the Center for High Rate Nanomanufacturing (CHN), Northeastern University Center for Renewable Energy Technology (NUCRET), Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (Gordon-CenSSIS), Center for Software Sciences (CSS), and Institute of Information Assurance (IIA). Northeastern's George J. Kostas Institute for Homeland Security offers infrastructures and facilities to develop and host first-of-kind application toolkits required by the FOA. Northeastern, being a world leader in experiential learning education, brings to the Smart Manufacturing Institute its co-op based education model, industry partners, and several workforce development programs. Northeastern runs first-class co-op programs university-wide at both the undergrad and graduate levels. Northeastern offers several education centers and programs that could help the Smart Manufacturing Institute meet its workforce development goals. These resources include STEM Education Center, Center for Entrepreneurship Education, Center for Workforce Analytics, MS Programs (in Energy Systems, Engineering Management, Information Systems), NU ADVANCE Program, Gordon Engineering Leadership Program, and Michael and Ann Sherman Center for Engineering Entrepreneurship Education. For details on Northeastern faculty and resources relevant to the Innovation Institute for Smart Manufacturing please visit coe.neu.edu/smartmanufacturing	Founded in 1898, Northeastern is a global, experiential research university. Our tradition of partnership and engagement creates a distinctive approach to education and research built on the values of experiential learning, innovation, and entrepreneurship. Northeastern is the recognized leader in experiential learning, powered by the world's most innovative cooperative-education program. We offer students opportunities for professional work, research, service, and global learning in 128 countries on seven continents. The same spirit of engagement guides a use-inspired research enterprise that is strategically aligned with three global imperatives: health, security, and sustainability. The university's research advances are characterized by global collaborations with industry, government, and other academic institutions. Our leadership in nanotechnology and data science provides a growing technological foundation for new discoveries in these and other areas of interdisciplinary research. The university is home to more than 30 federally funded research centers, including seven established by major grants from agencies such as the National Science Foundation, the National Institutes of Health, and the U.S. Department of Homeland Security. Partnering with Northeastern offers numerous benefits, outlined fully at coe.neu.edu/smartmanufacturing. 1. Access to the 90+ researchers working in areas directly related to this FOA. 2. Access to Northeastern facilities, including the Kostas Research Institute, a new facility offering a secure environment for innovative translational research conducted by private-public-academic multidisciplinary research teams. (See northeastern.edu/kostas for more information.) 3. A university partner with a longstanding tradition of listening and responding to government/industry needs, be it through workforce development (in addition to its renowned co-op program, the university offers ~25 related degree programs, several of which are offered in online or hybrid formats) or use-inspired research (the university has $125M in annual research awards – this has doubled in the past 9 years.)	Address: 360 Huntington Avenue, 501ST, Boston MA 02115 Email: a.alshawabkeh@neu.edu Phone: 617.373.3994

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Lawrence Berkeley National Laboratory	Dr. Vassilia Zorba	National Laboratory	Novel real-time, laser sensors for processes and materials. Advanced in-situ pulsed laser spectroscopies ideally suited for direct concentration monitoring, rapid classification and quality control of solid, liquid or gas species in high-throughput processes and applications in advanced manufacturing. State-of-the-art femtosecond and nanosecond laser facilities for the development of advanced sensors and controls. Data collection and automation coupled with advanced chemometric algorithms for rapid processing.	The Laser Technologies Group at the Lawrence Berkeley National Laboratory (LBNL) focuses on the development of next generation laser spectroscopies and sensors for a variety of diverse high-impact applications. LBNL is a Department of Energy (DOE) Office of Science lab managed by University of California.	Address: 1 Cyclotron Rd, MS70-108B, Berkeley, CA Email: vzormpa@lbl.gov Phone: 510-486-7040
CONSTRUCTIS, LLC	Jim Nigg	Alternative Energy – Kinetics	Roadway Kinetic Energy Patent, Design Applications, Fabrication, Installation, Maintenance and Construction Management.	Capture and convert energy from vehicles passing over rumble strips and either use, net meter or store.	Address: PO Box 6048, Greenville, SC 29606 Email: Jim.nigg@constructisllc.com Phone: 843-818-8122

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Infologic, Inc.	Has Patel	Minority-owned small business	Innovation & Technology Planning, TRL/MRL Analysis, CMMI™-based Innovation Maturity Analysis, Technology Road-mapping, Technology Due Diligence	Infologic, Inc capabilities which are applicable to the Smart Manufacturing Institute include: 1: TRL/MRL Analysis – Conduct these analyses for the research projects and technologies to be developed by the Institute. Past performance - Using the DoD TRL Calculator, conducted TRL/MRL analysis for two DoD S&T projects at the Navy SPAWAR Systems Center (SSCPAC), San Diego, CA. 2: Roadmap for the Smart Manufacturing technologies – Assist the Institute in developing the roadmap using industry best practices, such as Technology Hype Cycle, Innovation Cash curve, and Infologic-developed Technology Due Diligence methodology (TechIP). Past performance – Conducted research to incorporate industry best practices in the DoD S&T Program, and published a paper at the NDIA 14th Science & Engineering Conference, titled: "The Creative Destruction of Defense S&T Program". 3: Technical Education and Workforce Development – Based on an Infologic-developed Innovation Management Model (iModel), assist the Institute in developing and delivering a course for the SMEs and students seeking a career in advanced manufacturing. The objective of the course may be to empower the SMEs and students to (a) develop Innovation culture, (b) develop technology plan, and (3) implement the plan using a CMMI™-based Innovation Maturity model. Past performance – Developed a three-credit, hybrid (on-site/on-line) course, titled: "Successfully Transitioning R&D Projects to Commercial Products".	Address: 25 Palatine # 212, Irvine, CA 92612 Email: has.patel@infologic.com Phone: (888) 325 0500 ext. 100
Bourns, Inc	Henry Tran	Bourns is a privately held, for-profit electronics manufacturer based in southern California with over 60 years of experience supplying electronic components to every facet of the electronics industry.	Bourns area of expertise centers on the manufacturing of electronic component with product lines now including precision potentiometers, panel controls, encoders, resistor/capacitor networks, chip resistors/arrays, inductors, transformers, resettable fuses, thyristor-based overvoltage protectors, line feed resistors, gas discharge tubes, telephone station protectors, 5-pin protectors, industrial signal, irrigation and petroleum protectors, CATV coax protectors, signal data protectors, indoor and outdoor POT splitters, network interface devices, and integrated circuits. We serve a broad range of markets including telecommunications, computers, industrial, instrumentation, automotive, consumer, audio, and medical.	Bourns has extensive manufacturing capabilities all over the world including the U.S. and annually produces over 100 million electronic components per year. Headquartered in Riverside, California we have extensive precision molding capabilities as well as miniaturization, precision assembly, dual-line assembly, ink/paste formulation capabilities. For more detailed information, please visit http://www.bourns.com/services/capabilities .	Address: 1200 Columbia Ave Riverside, CA 92507 Email: Henry.tran@bourns.com Phone: +1 951 781 5261 (o) +1 951 781 5675 (f)