WIDE BANDGAP POWER SEMICONDUCTOR DEVICES Teaming List

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This document contains the list of potential teaming partners for the WIDE BANDGAP POWER SEMICONDUCTOR DEVICES, solicited in RFI-0000004 and is published on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov), ARPA-E's online application portal. This list will periodically undergo an update as organizations request to be added to this teaming list. If you wish for your organization to be added to this list please refer to https://arpa-e-foa.energy.gov/ for instructions. **By enabling and publishing the WIDE BANDGAP POWER SEMICONDUCTOR DEVICES Teaming List, ARPA-E is not endorsing or otherwise evaluating the qualifications of the entities that are self-identifying themselves for placement on this Teaming List.**

Organization	Name	Organization Type	Area of Expertise	Background	Website	Email	Phone	Address
ABB US Corporate Research Center, ABB Inc.	Le Tang	Business > 1000 Employees	Grid	Power and Automation	www.abb.com	le.tang@us.abb.com	+1 919 856 3878	940 Main Campus Drive, Raleigh NC 27606
APEI, Inc.	Dr. Ty McNutt	Business < 500 Employees	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	APEI, Inc. specializes in developing and manufacturing high power density and high efficiency power electronic solutions and products based on wide bandgap (WBG) technologies. APEI, Inc.'s commercial ISO9001 and AS9100 certified Class 1000 manufacturing facility offers custom power substrate manufacturing, power module manufacturing, and microelectronics assembly manufacturing services. The manufacturing lines have been designed to deliver the highest quality product for those applications that need the best performance and reliability, including a specialization in high temperature electronics manufacturing processes to 400 C. For technology development, APEI, Inc. offers multiple circuit design teams for high performance power circuits and systems from prototype through full mechanical integration, fully exploiting the performance advantages of WBG technologies. In addition, full testing and qualification capabilities for wide bandgap technologies are available.	www.apei.net	tmcnutt@apei.net	479-443-5759	535 W. Research Center Blvd., Fayetteville, AR 72701
Appled Physical Electronics, LC	Dr. Jon Mayes	Business < 500 Employees	Other	Applied Physical Electronics, LC (APE) is a leader in compact, high power pulsed Electronic Warfare systems, EMP test systems, and high power, pulsed microwave systems. APE has developed a patent pending concept for fabricating and switching high voltage (10's kV), high current (kA's) Silicon Carbide devices that employ reverse biased PN junctions in nanosecond time scales. A small quantity (<1uJ/cm2) of sub-band optical energy is used to initiate the Trapped Avalanche Plasma Transit Time (TRAPATT) closure mode which results in nanosecond transition times and current rise rates on the order of 1000 A/us. This approach can be applied to all PN junction devices including BJTs, IGBTs, thyristors, and PIN diodes.	www.apelc.com	mayes@apelc.com	512-264-1804	P.O. Box 341149, Austin, TX 78734

Organization	Name	Organization Type	Area of Expertise	Background	Website	Email	Phone	Address
Arizona State University	Srabanti Chowdhury	University	Renewable power (non-bio)	Fabricated the first vertical GaN transistor(CAVET) for Power electronic application-2008 (UCSB) 1.2KV lateral HEMT fabrication with GaN-on-Si (Transphorm) capabilities: Fabrication and Modeling of Devices, Growth by MOCVD,MBE, HVPE, Dielectric deposition and characterization, High voltage switching and breakdown voltage measurement , Integration of devices into circuits, Reliability studies and failure analysis	http://faculty.engineering.asu.edu/chowdhury/	srabanti.chowdhury@asu.edu	1 805 284 6352	Srabanti Chowdhury Assistant Professor School of Electrical, Computer and Energy Engineering Arizona State University 551 East Tyler Mall, Rm-ERC 539 Tempe, AZ-85287-5706 Email: Srabanti.Chowdhury@asu.edu Phone : +1 480 965 2831
Clemson University	RajendraSingh	University	Renewable power (non-bio)	Batch processing based material growth processes employed in industry today have very limited prospect in terms of further reducing crystal defects of SiC and GaN. Silicon IC industry has virtually adopted single wafer processing (SWP) to address the issue of defect density. The use of advanced process control in SWP allows the control of defect density as well variability of device parameters. Rapid thermal processing is used to provide shorter processing time and lower processing temperature resulting in lower defect densities. In addition, the use of high energy incoherent photons in SWP and CVD provides ultra-high performance devices. Incoherent light sources capable of illuminating a large area (such as 8 inch wafers) with sub 200 nm wavelength are available now and there is an excellent opportunity to develop new processing tools and new processes for SiC and GaN power devices and circuits. Our radically different technology will build next generation of power electronics. We have the capability of depositing materils for manufacturing semiconductor devices that will provide highest performance, reliability and yield. In addition our process will provide best results for annealing and dipoing. ny semiconductor device can be manufactured by our process. Manufacturing process that will provide highest performance, yield and reliability of a semiconductor device. All thin film materials can be deposited by our process. In addition best results are obtained for annealing and doping.	http://www.clemson.edu/ces/departments/ece/faculty_staff/faculty/rsingh.html	srajend@clemson.edu	864-710-1311	112 Santee Trail, Clemson, SC 29631

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Consultant	John Wilcox	Individual	Renewable power (non-bio)	Detailed numerical modeling of III-V device physics. Theoretical and material parameter based modeling of high temperature and very high temperature devices. Device and module level optimization for the Very High Efficiency Solar Cell project, resulting in the current 38.5% efficient world record sub-module.	www.linkedin.com/in/johnrwilcox	jrwilcox@gmail.com	801-830-4566	Hall for Discovery and Learning Research RM 433-21, 207 South Martin Jischke Drive, West Lafayette, IN 47907
Crystal innov Tech Center	Patricia Jeandel	Federally Funded Research and Development Center (FFRDC)	Other	Crystal growth (bulk and epitaxy) development and wafer preparation (wide bandgap ; piezoelectric ; sapphire ; photonics ; electro optics...)	www.cristalinnov.fr	patricia.jeandel@cristalinnov.fr	+33 (0) 619 234 056	354 voie magellan - 73800 Sainte helene du lac - France
Crystal IS	Craig Moe	Business < 500 Employees	Other	Free-standing, low-defect density AlN substrates as well as the epitaxial growth of AlGaN and GaN structures by MOCVD.	http://www.cisuvc.com	moe@cisuvc.com	518-271-7375	70 Cohoes Avenue, Green Island, NY 12183
Dow Corning	Mark Loboda	Business 500-1000 Employees	Other	Supplier of WBGS substrates	www.dowcorning.com	mark.loboda@dowcorning.com	989-496-6249	2200 W. Salzburg Rd, Mail CO41A1, Midland MI 48686
ETC Epitaxial Technology Center	Danilo Crippa	Business < 500 Employees	Other	ETC founded in 1997 with the role of technical service and process development for the LPE reactors. Since 2001 ETC has been focusing on R&D of new materials participating to 7 R&D Italian and European projects on SiC. More than 30 papers have been published and some patents have been granted. ETC was the first company in the world to have developed an epitaxial process using TCS reaching 125 µm/h growth rate. In 2007, a brand new facility with 250m2 of Class 10 clean room was set up in which SiC and Silicon epitaxial reactors were installed. In four years ETC has become one of the major player in SiC epitaxy. ETC is the only SiC epi service company able to supply very high epi thickness with very low doping for high voltage applications. ETC has 20 people and is part of the SiCilab R&D group devoted to new materials for electronics. Process capabilities: Thickness: up to 200µm Doping: 5e13 cm-3 to 1e19 cm-3 P and N-type Diameter: 2" to 150mm	www.etc-epi.com	danilo.crippa@lpe-epi.com	-3834114	16a strada - Pantano d'Arci Blocco Torre Allegra, 95121 Catania, Italy
FREEDM Systems Center, NC State Univ.	Alex Huang	University	Grid	FREEDM Center, is an NSF ERC, with strong research program in SiC, GaN power device research, as well as power device Packaging. The center also has an extremely strong power electronics program and facility up to 15kV. The center has more than 140 graduate students, making it the largest power and energy research group in the country. Major facility for power device research are 1) State of the art clean room, 2)analytic instrumentation facility, 3)device characterisation lab 4)device Packaging lab 5) power electronics lab	www.freedm.ncsu.edu	aqhuang@ncsu.edu	9195137387	1791 Varsity Drive, suite 100,Raleigh, Nc 27695-7571

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Gannon Motors and Controls, LLC	Chris Mi	Business < 500 Employees	Transportation	Bench testing, system modeling and integration, automotive powertrain control, inverter, DC-DC converter.	513 Torrington Drive West	mi3032@gmail.com	7347658321	47440 Michigan Ave. Suite 100 Canton MI 48188
GeneSiC	Ranbir Singh	Business < 500 Employees	None of the above	GeneSiC designs, fabricates, characterizes and commercializes widebandgap power devices made with Silicon Carbide and Gallium Nitride.	www.genesicsemi.com	ranbir.singh@genesicsemi.com	+1 703 996 8200 x105	43670 Trade Center Place; Suite 155; Dulles VA 20166
Georgia Institute of Technology	Shyh-Chiang Shen	University	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	High voltage III-nitride electronic device technologies; energy efficient electronics	http://users.ece.gatech.edu/~shensc/	shensc@ece.gatech.edu	404-894-1884	777 Atlantic Drive NW, Atlanta, GA 30332
Global Communication Semiconductors, LLC	Wing Yau	Business < 500 Employees	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	Global Communication Semiconductor (GCS), LLC, is the only pure-play merchant III-V compound semiconductor foundry service provider in the U.S. Our capabilities include: * A broad portfolio of standard processes in HBT, pHEMT, HFET, THz diode, GaN/SiC HEMT and IPD; * Maintaining captive and specialized processes in MESFET, HFET, HBT, GaN/Si HEMT; SiC high-voltage Schottky diode (600 and 1200 V) and JFET (600 and 1200 V); * Demonstration of high-voltage, low-leakage GaN HEMT (600 and 1200 V); * Expertise in epitaxial structure design; * SEM, EMMI and high-temperature ovens to support FA and long-term reliability activities; * Pulsed I-V and high-voltage test equipment for wide bandgap power semiconductor device characterization; * Process Design Kits (PDK) with design rules, device models and DRC decks for both standard and specialized processes; * On-wafer dc and RF testing, wafer binning and inking, electronic wafer maps, etc.	www.gcsincorp.com	wyau@gcsincorp.com	Wing Yaui	23155 Kashiswa Court, Torrance Ca 90505
Ideal Power Converters	Bill Alexander	Business < 500 Employees	Grid	Novel power conversion topology that requires bi-directional switches. We are interested in bi-directional SiC MOSFETs at all voltage levels. These are produced as bi-directional IGBTs, but are operated as MOSFETs, for low forward voltage drop.	www.idealpowerconverters.com	bill.alexander@idealpowerconverters.com	5125600774	5004 Bee Creek Rd, Spicewood, TX 78669

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II-VI Incorporated : WBG Materials	Dr. Andy Souzis	Business > 1000 Employees	Other	II-VI is the world's 2nd largest supplier of silicon carbide (SiC) substrates, which are utilized for highly energy efficient, high frequency, high power and thermal management applications. Our material quality is world class and we are an independent, merchant supplier, not competing with our own customers. We supply SiC substrates in diameters of 3", 100mm and recently became one of the world's first suppliers of 150mm n-type substrates. We team with customers of all sizes and have extensive contacts and working relationships within the industry to enable additional capabilities if needed by the team. Our engineers and manufacturing teams are also willing to consider custom requirements that may be needed to address unique program requirements.	www.iiviwbg.com	asouzis@ii-vi.com	973-227-1551 x66224	20 Chapin Road, PO Box 840, Pine Brook NJ 07048
IQE	Wayne Johnson	Business 500-1000 Employees	Other	IQE is the world's leading compound semiconductor epitaxial wafer foundry. IQE maintains production-scale GaN capabilities in multiple US-based factories, including epitaxial wafer growth, a complete suite of materials characterization equipment, HEMT fabrication and test, and a team of GaN scientists focusing exclusively on (In,Al,Ga)N materials development. For power electronics applications, IQE offers both GaN-on-Si and GaN-on-SiC solutions. IQE's GaN-on-Si highlights include crack-free, low warp/bow HEMT wafers on Si(111) at 100mm, 150mm, and 200mm substrate diameters. Also, IQE recently announced the world's first GaN HEMT epiwafers on 150mm semi-insulating SiC substrates. In addition, IQE supports a broad range of GaN-based products for RF, wireless, and military applications, including AlGaN/GaN and InAlN/GaN HEMTs. All IQE GaN-on-Si and GaN-on-SiC products are grown in production, multi-wafer reactors suitable for high volume manufacturing.	www.iqep.com	wjohnson@iqep.com	508-824-6696	200 John Hancock Rd., Taunton MA 02780
ITN Energy Systems	Thomas Kodenkandath	Business < 500 Employees	Technologies that enable active cell-level balancing and control	Low-cost manufacturing of functional materials, ex. ZnO/ZnF2/SnO2 based wide band gap materials. Investigation of technologies with the potential to enable extremely low cost and highly scalable free standing substrates based on ZnO/ZnF2/SnO2; Approaches include novel solution chemistry's for their epitaxial growth.	www.itnes.com	tkodenkandath@itnes.com	3032855109	8130 Shaffer Parkway, Littleton, CO-80127
ITN Energy Systems, Inc.	Ashu Misra	Business < 500 Employees	Other	ITN has developed a proprietary method of energy optimized sputtering for low-temperature epitaxy in the manufacturing of wide bandgap semiconductor devices. ITN's technique enables fine control of plasma energies during sputtering processes to achieve low defect density epitaxial films at low temperatures. The benefits of this technique include dramatically reduced manufacturing energy and carbon footprint, lower equipment and materials cost, improved device performance, improved production yield, and a tunable bandgap.	www.itnes.com	amisra@itnes.com	303-285-5137	8130 Shaffer Parkway, Littleton CO 80127-4107

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Kyma Technologies, Inc.	Heather Splawn	Business < 500 Employees	Other	--Kyma's plasma vapor deposition (PVD) tools and PVD grown AlN on Si template products support the fabrication of heteroepitaxial GaN on Si power electronic devices -- Kyma's hydride vapor phase epitaxy (HVPE) tools and HVPE grown bulk GaN substrates supp	www.kymatech.com	splawn@kymatech.com	919-789-8880 ext. 2241	8829 Midway West Road, Raleigh, NC 27617
Massachusetts Institute of Technology	Tomas Palacios	University	Other	We have extensive expertise in the design, fabrication and characterization of both vertical and lateral GaN power transistors with state of the art performance; There are also large efforts in the area of device reliability, compact modeling, and thermal management. We are also very interested in new highly integrated approaches for energy storage elements, and new very high frequency power electronic circuits. We have fabrication capabilities for up to 6" Ga-on-Si Wafers, although smaller pieces are also feasible. Our lab also has large characterization capability with both commercial systems and custom-made equipment.	http://www-mtl.mit.edu/wpmu/gan/	tpalacios@mit.edu	617-324-2395	77 Massachusetts Ave., Bldg. 39-567B, Cambridge, MA 02139
Monolith Semiconductor Inc.	Dr. Kevin Matocha	Business < 500 Employees	Other	Design and manufacturing of SiC power devices	www.monolithsemi.com	kmatocha@monolithsemi.com	518-986-0696	101 E. State Street, The Commons #198, Ithaca, NY 14850
Nitride Crystals Inc	Heikki Helava	Business < 500 Employees	Technologies that offer new control capabilities via advanced models, mechanisms, or actuators	Optical modulation of WBG materials and devices HVPE growth of AlInGaN on AlN, SiC, Si, Al2O3 Bulk crystal growth of AlN, SiC	www.nitride-crystals.com	heikki.helava@nitride-crystals.com	631-242-8853	181 E Industry C Ste B, Deer Park, NY 11729
Novati Technologies	Tim Scott	Business < 500 Employees	Other	Novati provides silicon-based technology development and foundry services. We specialize in utilizing many new materials and novel technologies not typically used in traditional fabs. We offer very unique business models, including the ability for customers to operate the tools/equipment in our fab as if it is their own fab. Novati supports companies in the aerospace & defense, healthcare & life sciences, semiconductors, consumer-mobility and clean energy markets. We work on a wide variety of technologies including 3D packaging, WLP & TSV, MEMS sensors, power transistor architectures, and memories. We provide low-to-medium volume production in our 200mm & 300mm fab. Novati is teamed on several DARPA programs, including COSMOS & DAHI, and are working on heterogeneously integrating III-V on silicon, photonics on silicon, microbolometers and sensors. We incorporate extensive internal analytical services and materials characterization services with our existing capabilities.	www.novati-tech.com	tim.scott@novati-tech.com	(512) 356-2007	2706 Montopolis Drive, Austin, TX 78741

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Oak Ridge National Laboratory	Dominic Lee	Federally Funded Research and Development Center (FFRDC)	Grid	ORNL is the largest science and energy national lab in the DOE system, with unique facilities that can aid in the R&D of wide bandgap (WBG) semiconductors and devices. Using a vertically integrated approach, ORNL efforts range from fundamental science to technology development and maturation strategies with a focus on materials research, device design and testing, packaging, manufacturing processes, system design and development, and reliability. In particular, ORNL possesses vast materials expertise and is performing R&D in epitaxial deposition of GaN, diamond and other novel WBG materials, defects mitigation through innovative buffers and substrates, as well as alternative packaging materials and adhesion techniques. Most importantly, the Lab's automated WBG device and component testing capabilities enable benchmarking evaluation and characterization at the bare die and packaging level, which help keep the partners and the R&D community informed on the state of the art.	http://www.ornl.gov/	leedf@ornl.gov	865-241-0775	P.O.Box 2008, MS-6168, ORNL, Oak Ridge, TN 37831-6168
Oklahoma State University	Raj N. Singh	University	Other	Processing and properties of Diamond Thin films for wide band gap devices and thermal management of HEMTs, SIC and GaN based power devices by MPCVD approaches.	http://www.osu-tulsa.okstate.edu/helmerich/mse/singh.php	rajns@okstate.edu	918-594-8650	700 N. Greenwood Avenue, HRC-200, Oklahoma State University, Tulsa, OK 74106-0700
Oklahoma State University	Nirmal Govindaraju	University	Other	Current research on wide bandgap semiconductor materials synthesis, processing, and characterization. Developing materials for thermal management of power electronics. Thermal analysis and simulations. Designed and implemented thermal and electrical property measurement systems. Developing diamond and AlN based devices for high temperature, high power and radiation hard electronics applications. Diamond based sensors for chemical and biological agent detection. Cleanroom for device fabrication and materials characterization facilities. Also interested in development of wide bandgap semiconductor materials and devices for optoelectronic applications.	http://www.osu-tulsa.okstate.edu/helmerich/index.php	nirmal.govindaraju@okstate.edu	918 594 8627	Department of Materials Science and Engineering, 700 North Greenwood Aenue, Tulsa, OK 74106

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PARC	David Schwartz	Business > 1000 Employees	Other	PARC is a leading research institution focused on bridging the gap between fundamental research and manufacturing. PARC has an extensive history of successful government and commercial projects. With regard to this FOA, PARC's interests and capabilities include: •Design and growth of GaN heterostructures by MOCVD •Epitaxial GaN of high crystalline quality •GaN materials expertise and processing facilities •Electronic device design and testing •Prototype GaN transistors •GaN optoelectronic devices •On-chip high-Q inductors for RF and high-frequency power conversion applications •Integrated power converters including hybrid Si/WBG systems	www.parc.com	David.Schwartz@parc.com	650-812-4733	3333 Coyote Hill Road, Palo Alto, CA 94304
Penn State University	Joan Redwing	University	Grid	Epitaxial growth of thick GaN on Si substrates using in-situ curvature measurements to monitor and control film stress and cracking. Structural, optical and electrical characterization of group III-nitrides.	http://www.matse.psu.edu/faculty/redwing	jmr31@psu.edu	814-865-8665	N210 MSC Building, University Park, PA 16802
PHYchip Corporation	Dhaval J. Brahmbhatt	Business < 500 Employees	HIGH ENERGY DENSITY ELECTRICAL ENERGY STORAGE FOR TRANSPORTATION	GaAs, InP and silicon semiconductor device physics, design of test chips, testing/evaluation of test chips, etc. Can also help locate the foundry to process the devices and also manage the foundry relations as well as processing of wafers.	www.phychip.net	dhaval@phychip.net	408-561-1594	25, N. 14th Street, San Jose, CA 95112.
Powerex, Inc.	Scott Leslie	Business < 500 Employees	Other	Designer/manufacturer of silicon-based & silicon-carbide based power semiconductor discrete & module SCR, diode, Mosfet & IGBT. devices. Also a designer/manufacturer of power electronics assemblies/subsystems utilizing SCRs, diodes, Mosfets & IGBTs. State of the art semi-automated power module assembly facility/clean room.	www.pwrx.com	sleslie@pwrx.com	724-925-4482	173 Pavilion Lane, Youngwood, PA 15697
QMAT, Inc.	Philip Ong	Business < 500 Employees	Other	QMAT, Inc. is a developer of high quality, cost effective, low defect GaN engineered substrate technologies using layer transfer processes as an alternative to GaN-on-GaN for high brightness LEDs and GaN power electronics applications. QMAT is also a designer of specialized manufacturing equipment used in the manufacture of layer-transfer substrates.	N/A	pong@qmatinc.com	408-228-5870	QMAT, Inc.

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RamGoss Inc.	Bunmi Adekore	Business < 500 Employees	Grid/ Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	Capabilities include Wide Bandgap Materials Epitaxial Deposition and Synthesis. Power Semiconductor Device Design, Modeling and Simulation Microprocessing and Microfabrication Materials and Device Characterization Compound Semiconductor Doping	www.ramgoss.com	badekore@ramgoss.com	617-281-7542	3 Gill Street, Suite F, Woburn, MA 01801
Rensselaer	Christian Wetzel	University	None of the above	Expertise and facilities for bulk GaN and low cost substrate epitaxial growth of GaN-based materials in MOVPE with emphasis of reduction of line and point defects. Advanced characterization and fabrication of III-nitride materials and devices. Doctoral degree training in Material Science, Electrical Engineering and Physics.	www.rpi.edu/~wetzel	wetzel@ieee.org	+1 518 276 3755	Future Chips Constellation, 110 8th St, Troy NY 12180
Rensselaer Polytechnic Institute	Michael Shur	University	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	Reliability modeling Characterization Parameter extraction Novel device designs Non ideal effects Thermal analysis	RPI, CII 6015, 110 8th Street	shurm@rpi.edu	5182536819	CII 6023 RPI 110 8th street Troy NY 12180
Rensselaer Polytechnic Institute	T. Paul Chow	University	Other	We have demonstrated numerous high voltage SiC, GaN, GaAs and Diamond power devices, have power device design and modeling, SiC and GaN epi growth, SiC and GaN integrated processes and high current/voltage characterization capabilities up to 400A or 20kV.	https://www.rpi.edu/dept/cfes/researchers/T-Paul-Chow.html	chowt@rpi.edu	518-276-2910	Bldg. CII, Room 6111, 110 Eighth St., Troy, NY 12180

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RTI International	Phil Barletta	Non-Profit	Technologies that offer new control capabilities via advanced models, mechanisms, or actuators	RTI can provide a comprehensive resource for the integration and packaging as well as the thermal management of electronic devices for high power applications. RTI is a leader in the development of thin-film-based thermoelectric (TE) materials, devices, and systems. It has worked with DARPA and other DoD system integrators to produce thin-film TE devices capable of pumping significantly higher heat fluxes, while having significantly lower volume and weight, than bulk devices. RTI has demonstrated the ability to cool >1kW/cm2 heat flux hot spots from the back side of a Si wafer. RTI also maintains a world-class facility that employs state of the art, advanced electronic packaging and interconnect technologies, as well as novel microfabrication and electronic material deposition capabilities. RTI is a leader in the development and implementation of wafer level packaging and 2.5D/3D integration technologies, providing solutions for low volume, development, and leading edge applications.	www.rti.org	pbarletta@rti.org	919-316-3905	3040 Cornwallis Rd, RTP, NC 27709-2194
Sandia National Laboratories	Jerry Simmons	Federally Funded Research and Development Center (FFRDC)	Other	Sandia has a wide range of capabilities, including materials epitaxy, materials characterization, novel materials, GaN and AlN MOCVD, wafer fabrication, GaN and SiC device design, fabrication, and testing, simulation and modeling, advanced packaging techniques, thermal simulation, high power circuit and subsystem design, and component testing at high voltage, high current, and high temperatures.	www.sandia.gov	jsimmon@sandia.gov	505-844-8402	Mailstop 1421, P.O. Box 5800, Albuquerque, NM 87185-1421
Soraa, Inc.	Mark D'Evelyn	Business < 500 Employees	Building Efficiency	Bulk GaN substrates Material processing Material characterization	www.soraa.com	mdevelyn@soraa.com	(805) 683-1800 ext 110	75B Robin Hill Road, Goleta, CA 93117
SRI International	Barbara Heydorn	Non-Profit	Other	SRI International has fab capabilities and expertise in multiple areas relevant to this FOA, including: •GaAs, GaN and SiC characterization and diamond growth •epitaxial growth •epitaxial lift-off process development •substrate fabrication •compound semiconductor doping •annealing • dielectric/semiconductor interfaces •analytical and testing services •FET electrical model analysis and development •Design of power conversion circuitry SRI's staff of 2,100 work in partnership with clients to invent, scale-up and commercialize promising technologies developed by SRI, brought to us by clients, or developed in partnership with clients. SRI has created and launched more than 50 ventures, with a total market capitalization exceeding $20 billion. Products that SRI pioneered include the computer mouse, the Internet, high-definition television, and Siri, the first virtual personal assistant for the iPhone.	http://www.sri.com/	barbara.heydorn@sri.com	650 859 5717	333 Ravenswood Ave., Menlo Park, CA 94025

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State University of New York-Albany	Shadi Shahedipour-Sandvik	University	Other	we have extensive materials growth facility (including a small scale manufacturing MOCVD system that can be converted to 6"), as well as state of the art characterization capability for III-Nitrides. in addition, we have a long standing expertise in AlGaN-based HEMT structure growth/characterization on Si and bulk substrates. We have established collaboration with small/medium/large companies in the subject matter and have successfully executed many projects.	http://www.albany.edu/WBGOptronixlab/	sshahedipour-sandvik@albany.edu	518-437-8620	257 fuller road, Albany, NY 12203
SunEdison	Mike Seacrist	Business > 1000 Employees	Other	SunEdison, formerly MEMC, has been a global leader in development, manufacture, and sale of silicon wafers for over 50 years, and with the acquisition of SunEdison in 2009, is a major developer and seller of photovoltaic energy solutions. The Corporate R&D group based in St. Peters, MO has extensive experience in crystal and epitaxial growth, wafer processes, process simulation, pilot production and commercialization of semiconductor material processes and products. The facility has the tools necessary for materials characterization including X-ray diffraction, SEM/EDX, AFM, and optical microscopy. In 2012 the company received a DOE award through the Advanced Manufacturing Office under the Innovative Manufacturing Initiative to develop a commercially viable version of the Electrochemical Solution Growth concept for Bulk GaN invented at Sandia National Lab. SunEdison is currently installing capability to develop the growth process to the 50mm diameter substrate size.	www.sunedisonsilicon.com	mseacrist@memc.com	636-474-5750	501 Pearl Drive, Mail Zone 89, St. Peters, MO 63376
Teledyne Scientific & Imaging	Vivek Mehrotra	Business < 500 Employees	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	Device design and fabrication, Device testing and reliability, Integrated circuits, Circuit design and control, Power electronic design and implementation, packaging, module-level integration, motor drives and control	www.teledyne-si.com	vivek.mehrotra@teledyne.com	805-373-4484	1049 Camino Dos Rios, Thousand Oaks, CA 91360
Thayer School of Engineering at Dartmouth	Charlie Sullivan	University	Other	Modeling, design, optimization, and fabrication of low-loss magnetic components for high-frequency power applications across a wide range of power and frequency levels.	http://power.thayer.dartmouth.edu	charles.r.sullivan@dartmouth.edu	802-448-0255	14 Engineering Drive, Hanover NH 03784
The University of Toledo	Yanfa Yan	University	Renewable power (non-bio)	Density-functional theory calculation of defects including both point and extended defects in wide bandgap semiconductor Develop approached to overcome doping bottlenecks in wide bandgap semiconductors Bandgap engineering of wide bandgap semiconductors	http://astro1.panet.utoledo.edu/~yyan/	yanfa.yan@utoledo.edu	419 530 3918	2801 Bancroft Street, Toledo, OH 43606

Organization	Name	Organization Type	Area of Expertise	Background	Website	Email	Phone	Address
Thin Film Nano & Microelectronics Research Laboratory	Yue Kuo	University	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	My research is concentrated on nano and microelectronics with special interests in semiconductors and thin films. The activities of the Thin Film Nano & Microelectronics Research Laboratory include new materials, novel processes, and advanced devices. The ultimate goal is to create high-performance, highly reliable, manufacturable devices for current and future applications. Both fundamental and applied research topics are carried out in this laboratory. Devices in the laboratory include MOSFETs, Thin Film Transistors, LEDs, Solar Cells, etc. Materials we are working on include semiconductors (amorphous, single crystal, or poly-Si, etc.), dielectrics (SiO2, SiNx, metal oxides, etc.), conductors (Al, Mo, Cu, Ti, Ta, ITO, ZnO, etc.). We the the following equipments: PECVD, RIE, sputtering, RTA, tube furnace, aligner, Agilent testers, etc.). We have achieved many world records in inventing new devices, fabrication processes, and applications.	http://yuekuo.tamu.edu	yuekuo@tamu.edu	979-845-9807	235 J. E. Brown Engineering Bldg., MS 3122, TAMU, College Station, TX 77843-3122, USA
Tuskegee University	Zengjun Chen	University	Other	Fabrication and Characterization of electronic devices on wide band gap semiconductors.	www.tuskegee.edu	chenz@mytu.tuskegee.edu	3347278299	Physics Department
University of Alabama	Patrick Kung	University	Other	Atom probe tomography of semiconductor materials and device structures, including III-Nitride based, in correlation with electron microscopy. Determination of dopant distribution profile and interface sharpness.	http://ece.eng.ua.edu/people/pkung/	patkung@eng.ua.edu	(205) 348-1764	101 Houser Hall, Box 870286, ECE Dept., Tuscaloosa, AL 35487-0286
University of Arkansas	Alan Mantooth	University	Transportation	Arkansas (UA) has excellent facilities ($35M High Density Electronics Center – HiDEC; $5M 6 MVA/15 kV test facility) and expertise in wide bandgap (WBG) power electronic systems. This includes power semiconductor device modeling where experimentally validated and published models include SiC BJT, diode, thyristor, SGTO, MOS, IGBT, JFET, and SIT. UA WBG power packaging includes die attach methods (TLP, sintering, AMB), materials (for passivations, underfill, and potting for both high temp and high voltage), wire bondless techniques, layout driven current balancing techniques, layout synthesis tools, thermal management, and heterogeneous integration (with passives, gate drivers (board and single-chip), protection and control). Power electronic circuits include matrix converters, multi-level converters, and standard back-to-back inverter topologies to name a few. Substantial work has been done on extreme environment electronics in modeling, design, and packaging.	http://ncrept.uark.edu	mantooth@uark.edu	479-575-4838	BEC 3217, Department of Electrical Engineering

Organization	Name	Organization Type	Area of Expertise	Background	Website	Email	Phone	Address
University of California, Riverside	Jianlin Liu	University	Other	Molecular beam epitaxy growth of high-quality wide band gap ZnO semiconductors; fabrication and characterization of semiconductor devices such as light emitting devices, photodetectors, transistors, memories, etc.	https://qsl.ee.ucr.edu	jianlin@ee.ucr.edu	951-827-7131	439 Winston Chung Hall, Department of Electrical Engineering, University of California, Riverside, CA 92521
University of Maryland	Alireza Khaligh	University	Technologies that facilitate low-cost, high-performance, and/or plug-and-play hybridization and integration of disparate devices	Power Electronics, EVs, PHEVs, EREVs, Solar Energy Conversion	www.ece.umd.edu/~khaligh	khaligh@ece.umd.edu	301-405-8985	2347 AV Williams Building
University of Michigan-Dearborn	Chris Mi	University	Transportation	System modeling, bench testing, integration.	http://www-personal.engin.umd.umich.edu/~chrismi/	mi3032@gmail.com	7347658321	4901 Evergreen Road, Dearborn, MI
University of New Mexico	Daniel Feezell	University	Other	Metal Organic Chemical Vapor Deposition of III-nitrides in both planar and vertical nanowire geometries. Selective-area nanoscale epitaxy of III-nitrides for finFET or vertical transistor geometries on sapphire or silicon. Advanced fabrication of III-nitride devices.	http://www.ece.unm.edu/faculty_Staff/Feezell.html	dfeezell@unm.edu	505-272-7823	1313 Goddard St SE, Albuquerque NM 87106
US Naval Academy	Thomas Salem	University	Other	Over ten years of research on SiC devices, modules, and systems. Widely published record of experimentally-based research on SiC characterization, operation, and performance. Collaborator with US Army Research Lab, with access to subject matter experts and fully equipped power laboratory. Experienced in development and design of experiment, fabricating prototype structures, and assembling test fixtures for conducting electrical and thermal analysis.	http://www.usna.edu/ECE/faculty.php	salem@usna.edu	4102936178	Maury Hall Mail Stop 14B, 105 Maryland Ave, Annapolis MD 21402