Organization Logo	Title	CompanyName	CompanyWebsite	CompanyExpertise	TeamInterest	PreferredPoC	Partners
	Boise State Universtiy	Boise State University	http://coen.boisestate.edu/anml	Additive Electronics Manufacturing In-Pile Nuclear Sensors Aerosol Jet Printing Nanoparticle Ink Development COMSOL Multiphysics	Joining a team	David Estrada, Ph.D. daveestrada@boisestate.edu 208-860-6035	Industry, National Labs, Universities
	Luna Innovations Inc.	Luna Innovations Inc.	https://lunainc.com/	Luna innovations has been working on high temperature distributed sensors for irradiation environments for the past three years. Luna has proven said sensors to neutron fluences beyond 2.5E+18 n/cm2 and to temperatures greater than 750°C. https://www.energy.gov/sites/prod/files/2019/12/f69/ne-22-2019-Fiber-Optic-Sensor-Simultanous-Measurement.pdf	Joining a team	Steven Derek Rountree, Ph.D. – Research Scientist rountreed@lunainc.com Office: 1-540-558-1667	Industry, National Labs, Universities
	NovaTech	NovaTech	www.novatechusa.com	For the advanced reactor company looking to assemble a winning team for DOE's Advanced Reactor Demonstration Program, NovaTech, a small business located in Virginia, brings an array of best-in-class innovative design, engineering, and fabrication capabilities. Of interest to the winning ARD Prime might be assistance with or turnkey supply of mechanical design/analysis, heat transfer, thermal hydraulics, and material analysis/testing applied to components such as fuel design, steam generators, handling equipment, and ancillary systems. Unlike some engineering companies who have focused on a limited number of technologies, NovaTech has gained expertise across a broad range of cutting-edge reactor designs, fuels, and materials through a robust SBIR program and past work with many of the biggest names in the nuclear industry.	Joining a team	Mitch Saville msaville@novatechusa.com 434-239-1979 x 136	Industry, National Labs, Universities
	University of New Mexico	University of New Mexido	http://ne.unm.edu/	Dr. Minghui Chen is an assistant professor in the Department of Nuclear Engineering at the University of New Mexico. His research mainly focuses on experimental thermal-hydraulics including separate and integral effects tests for Molten Salt Reactors and High-Temperature Gas-cooled Reactors.	Joining a team	Minghui Chen, Ph.D. Assistant Professor Department of Nuclear Engineering MSC01 1120 1 University of New Mexico Albuquerque, NM 87131 Phone: (505) 277-1941 Fax: (505) 277-5433 Email: mnu@unm.edu	Universities
	Colorado School of Mines Nuclear Science & Engineering	Colorado School of Mines Nuclear Science & Engineering	http://nuclear.mines.edu	Advanced nuclear reactors and fuel cycles are the focus of research at Mines' Nuclear Science and Engineering (NSE) program. Our core faculty bring deep expertise in design, modeling and simulation of advanced reactor systems and fuel cycles. Capabilities in this context include design optimization using Monte Carlo codes Serpent, MCNP and OpenMC. NSE faculty also have significant experience in multigroup diffusion and collision probability methods for rapid design, in-house thermal hydraulic codes, as well as RELAP and Nek5000. Our modeling and simulation capabilities have been applied to design studies of systems including solid moderated high temperature cores, sodium cooled fast reactors, advanced pressurized water reactors and micro-reactors. We have applied these capabilities to study transuranic recycling in advanced inert matrix fuels, and to develop rapid methods for computing self-shielding in advanced fuel geometries such as LightBridge helical cruciform fuel rods. The NSE faculty at Mines have extensive experience with market analysis and siting issues for SMRs and MMRs. This includes analytical capabilities to understand how reactors will perform in markets with high renewable penetration and how climatic shifts will affect cooling capacities. The expertise at Mines NSE also covers emerging technologies with the potential to revolutionize nuclear energy. Our faculty have considerable expertise in additive	Joining a team	Andrew Osborne Department of Mechanical Engineering Nuclear Science and Engineering The Colorado School of Mines Email:osbornea@mines.edu (303) 384-2003	Industry, National Labs
	NINE-LLC	NINE-LLC	NINE-LLC.com	Safety assessment of nuclear installations Support for licensing applications, contributing to and/or reviewing submittals covering Chapters 4, 15, 16 and 19 of NRC NUREG 0800 Development of Evaluation Models (EM) Subchannel code COBRA-TF development, verification, validation, application, documentation, user training, commercial code licensing sales Development, assessment and application of complex deterministic and probabilistic models for simulation of operation and accidents in support of design, licensing and operations. Qualification and application of Best Estimate Plus Uncertainty (BEPU) method. Compliance with US NRC regulations including recent updates (e.g. 10 CFR 50.46c) Experimental support for design of power and other industrial facilities and development and assessment of analytical models Assessment of NPP Severe Accident response, including radiological source term determination	Joining a team	Wayne Marquino w.marquino@nine-llc.com 910-228-2982	Industry, National Labs

CollaborationGoal	AdditionalInformation
Develop long-lasting partnerships that advance nuclear energy.	N/A
Luna is interested in collaborating with prime contractors for DOE FOA-2271, Advanced Reactor Demonstration Funding Opportunity, to provide high-definition temperature profiles of advanced reactors and reactor peripheral systems. Luna will provide advanced sensing capabilities for the advancement of advanced reactors. In so doing, Luna will advance its sensing technology and further qualify its high-definition fiber optic sensing for nuclear power reactor systems.	Related Literature: Developing Advanced Sensor Instrumentation for Next Generation Nuclear Plants: https://lunainc.com/developing-advanced-sensor-instrumentation-generation-nuclear-plants/ Fiber-Optic Sensor for Simultaneous Measurement of Temperature and Pressure https://www.energy.gov/sites/prod/files/2019/12/f69/ne-22-2019-Fiber-Optic-Sensor-Simultanous-Measurement.pdf Fiber Optic Sensor for Simultaneous Measurement of Temperature and Pressure https://www.energy.gov/sites/prod/files/2018/10/f56/Advanced%20Sensors%20and%20Instrumentation%20Newsletter%20-%20Issue%209%20September%202018.pdf
Partner with a team to help make the future of nuclear energy a reality.	NovaTech is available to help develop a proposal and can bring a lot of added value to the proposal phase. NovaTech has an established SBIR program and is familiar with working with the DOE.
Thermo-fluid experimental testing critical components or systems for molten salt reactors and high-temperature gas-cooled reactors.	Lab capabilities: Molten salt heat transfer test facility, critical heat flux test facility, forced flowing FLiBe test loop, glovebox, high-temperature furnaces, etc.
Faculty at Mines NSE are looking to collaborate with industry or national laboratory partners to address the call to "facilitate the development of US private industry advanced nuclear reactor demonstrations" through designs that "...provide significant improvements in safety, security, economics, and environmental impact over current nuclear power plant designs". We are ideally positioned to conduct several of the activities enumerated in the Risk Reduction for Future Demonstrations pathway. Specifically, we are looking to perform modeling and simulation to address operational and safety issues, conduct prototyping of major components, develop plant control and protection systems including plant simulators and operator training programs. We are also looking to conduct activities listed in the Advanced Reactor Concepts including modeling and simulation, design analysis, selection and testing of materials and fuel forms, and design and execution of scaled experiments.	Relevant Publications: J. J. Berry, G.G. Gil-Delgado, A.G. Osborne: "Classification of Group Structures for a Multigroup Collision Probability Model Using Machine Learning", in review. J. Dorville, A.G. Osborne: "Neutron Escape Probabilities in 3-D Reentrant Geometries Computed Using Ray Tracing". Annals of Nuclear Energy Vol. 142 (2020). A.G. Osborne, M.R. Deinert: "Reducing Irradiation Damage in a Long-Life Fast Reactor with Spectral Softening". Energies, Vol. 11(6), 2018. C. L. Dembia, G. D. Recktenwald, and M. R. Deinert, "Bondarenko method for obtaining group cross sections in a multi-region collision probability model," Prog. Nucl. Energy, vol. 67, pp. 124–131, Aug. 2013. G. Recktenwald, M.R. Deinert: "Effect of Burnable Absorbers on Inert Matrix Fuel Performance and Transuranic Burnup in a Low Power Density Light-Water Reactor", Energies, Vol. 6(4), 2013. Alameri, S. A., King, J.C., Alkaabi, A.K., Addad, Y., "Prismatic-core advanced high temperature reactor and thermal energy storage coupled system – A preliminary design," Nuclear Engineering and Technology, 2020, vol. 52, pp. 248-257, doi: 10.1016/j.net.2019.07.028. Alkaabi, A.K., King, J.C., "Benchmarking COMSOL Multiphysics Single-Subchannel Thermal-Hydraulic Analysis of a TRIGA Reactor with RELAP5 Results and Experimental Data," Science and Technology of Nuclear Installations, 2019, Article ID 4375782, doi: 10.1155/2019/4375782. Mencarini, L.d.H., King, J.C., "Fuel geometry options for a moderated low-enriched uranium kilowatt-class space nuclear reactor," Nuclear Engineering and Design, 2018, vol. 340, pp. 122-132, doi:
Application of CTF-Fuel, a state of the art subchannel code for Sodium, Floride and Cloride Fast Reactor, including whole core/pin level calculations Application of process plant simulation platforms to Model Based Design/Simulation Assisted Engineering of advanced nuclear plants. Development of Digital twins for advanced reactors to optimize operation within a safe envelope. Application of CTF-Fuel, a state of the art subchannel code for Sodium, Floride and Cloride Fast Reactor, including whole core/pin level calculations. Application of process plant simulation platforms to Model Based Design/Simulation Assisted Engineering of advanced nuclear plants. Validation and Validation of evaluation models using code to code comparisons, test data and operating experience. Application of Best Estimate Plus Uncertainty methods to reactor licensing. Development of systems and fuel performance codes for molten fuel reactors. based on OPEN FOAM, called GEM FOAM, multi-physics molten salt reactor coupled Thermal Hydraulics, Fuel, Reactor Physics and Chemistry. Application of NRC Licensing Modernization Program to test reactor licensing. Determination of severe accident radiological source term and consequences.	Provided on request