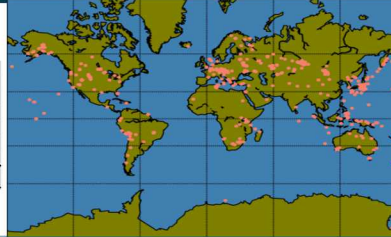
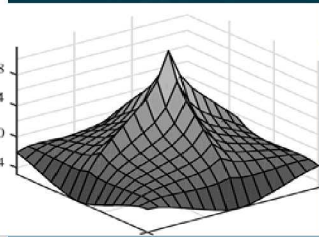
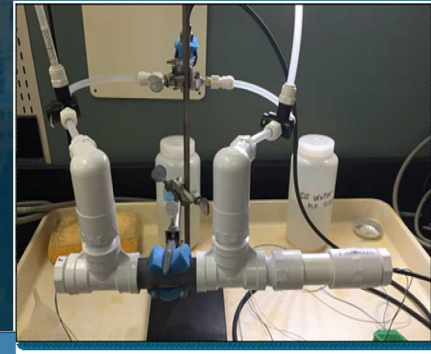


# University Update



PRESENTED BY

Paul E. Shoemaker, 8880



## Motivation

- Scientific and intellectual collaboration
- Development of innovation and new research ideas
- Increase Sandia visibility with university faculty and students
- Recruitment of student interns, postdocs, and staff
- Recruitment of established professors for staff positions
- Access to demographic diversity associated with universities
- Leverage program development with established university research centers
- Access to alternative funding through partnerships

## Sandia Programs

- Campus recruitment of postdocs and staff
- Student Intern Program
- University programs for employees
- Master's Fellowship Program
- Truman Fellowship (8 at present)
- Campus Executive Program (21 universities including 3 in New Mexico)
- Academic Alliance (began in FY16)

# University Partnerships Strategy

*Provide national leadership in science and engineering by establishing enduring partnerships with a focused set of universities*

Develop joint IP and deploy new technologies

Engage and develop talent



Conduct collaborative, mission-driven R&D

The Campus Executive Program continues to provide the framework by which university partnerships are executed.

# University Partnership Programs

The Campus Executive Program consists of 21 universities, of which 5 are Academic Alliance partners.

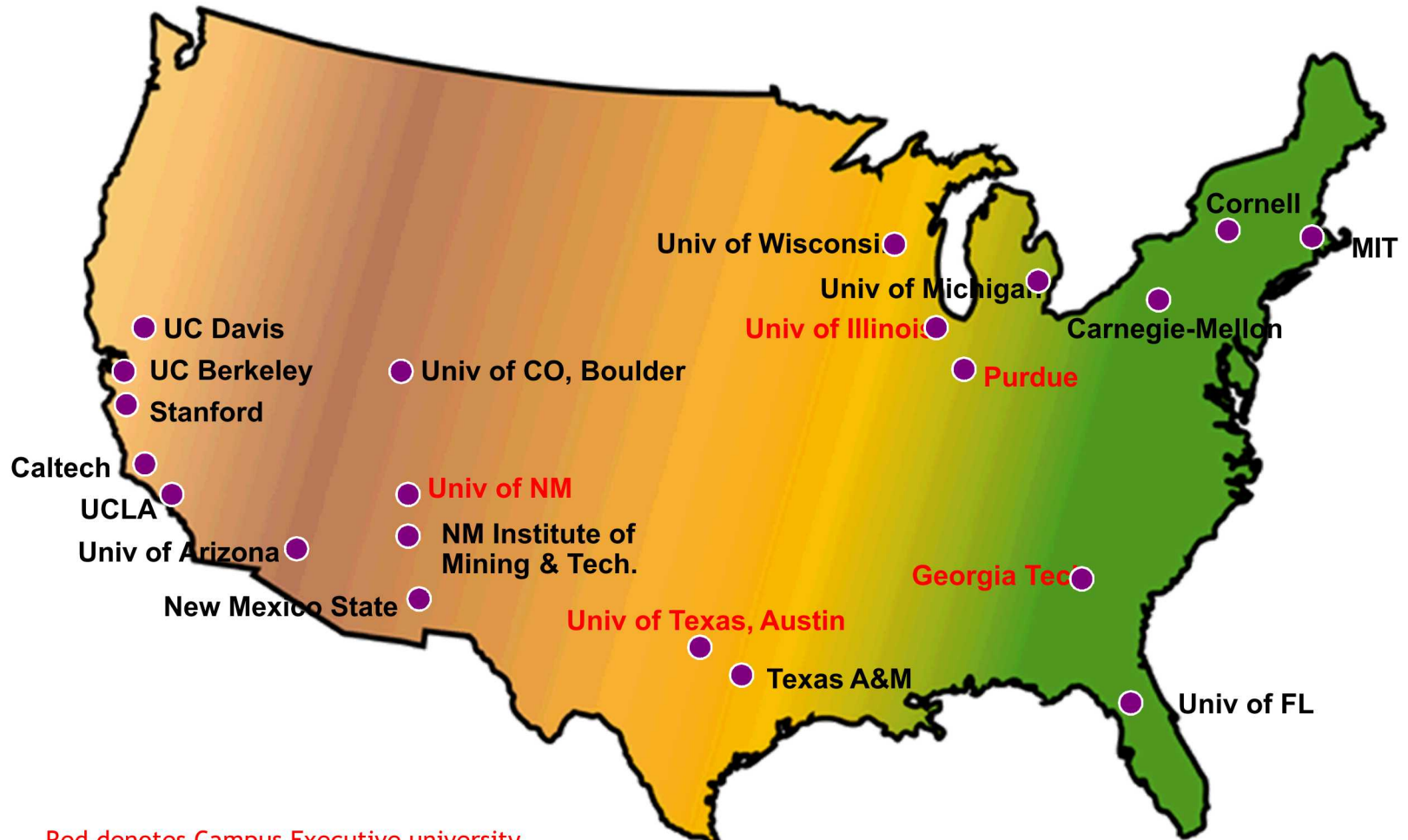
## Campus Executive

- Continued support for corporate recruiting teams at all 21 CE schools
- Research collaborations at several schools between professors and Sandia researchers; US citizen students

## Academic Alliance

- Signed MOUs with 5 schools pledging joint institutional commitments
  - *Georgia Tech, Purdue, University of Illinois at Urbana-Champaign, University of New Mexico, University of Texas at Austin*
- Assign managers to each of the out-of-state schools
- Investing additional resources to drive research collaborations and recruiting

# University Partnership Programs



Red denotes Campus Executive university  
Selected as Academic Alliance partner

7 | **Earth Science Strategic Partners**



- Long term work with UAF on Atmospheric Radiation Measurement (ARM) project
- Partnership with UAF and Woodrow Wilson center Arctic Infrastructure Resilience project (PREPARED)
- Long term work with UAF (Wilson Alaska Technical Center) on Low Yield Nuclear Monitoring
- Discussions to submit co-proposal to SERDP/ESTCP (DoD) on defense arctic infrastructure planning tool
- Partnering with UAF, PNNL, LANL on Alaska National Lab Day follow-on
- Connected UAF ACUASI with NRL concerning UAV flights from a vessel offshore of the North Slope beginning in 2020 as part of NASA Arctic Colors

## University of Alaska Fairbanks (continued)

- UAF GINA (Geographic Information Network of Alaska) hosts ARM North Slope forecast graphics and extreme weather warnings produced at Sandia
- Met with GINA Director John Pace and Chief Scientist Martin Steufer in October '18 and January '19 to discuss:
  - Sandia proposal with UAF collaboration to ERDC (Army Engineer Research and Development Center) regarding observation and modeling of radio wave ducting on the North Slope
  - Potential Intensive Operating Period activities at ARM AMF3 in Oliktok Point in 2019 involving manned aircraft and tethered balloons

## University of Alaska Fairbanks (continued)

- Joint Proposals
  - “Probabilistic Tools for Optimal Siting of Solar Energy and Storage” to SETO and LDRD office
  - “Modeling Arctic Storms and Impacts of Diminishing Sea Ice” to DOE BER E3SM and RGM
  - Co-submitting proposal to NSF Navigating the New Arctic for US High Arctic Research Center
  - ERDC BAA (radar ducting)
  - GMLC project for networked microgrids along the Alaska railbelt LDRDs
- UAF CRADA
- LDRDs
  - Space physics
  - Coastal erosion
  - Data assimilation for wave energy/grid integration

- Erik Webb; member of the advisory board for the Berg-Hughes Center for Petroleum and Sedimentary Systems
- Completed an Umbrella CRADA in FY17, Road Mapping of Collaborative Opportunities Involving Molecular Simulation of Shales. SNL staff (Greathouse) visited TAMU in August 2017 to meet with faculty in the Department of Petroleum Engineering. Funding for this activity came from FE-PD. The CRADA was closed out in May 2018.
- Representatives from the Berg-Hughes visited Sandia in February 2018 to discuss possible collaborations.

- Emily Morton; a NM Tech Ph.D. student, is a longtime year-round student working with Rob Abbott on the Source Physics Experiment Project Campus recruitment
- Regional Carbon Sequestration Partnership (Jason Heath)
- Incorporated Research Institutions for Seismology (IRIS) Equipment/Interns annually
- Energetic Materials Research and Testing Center (EMRTC) – Blue Ridge Joint Wellbore Test Facilities



- Center for Frontiers of Subsurface Energy Security: Grant Heffelfinger (Office of the CRO) – Associate Director and Anastasia Illgen (8865) – Assistant Director
- Two ES LDRDs have Academic Alliance supplements (\$99K each)
  - Monitoring and Repair of Damaged Cement-Geomaterial Interfaces in High Pressure High Temperature Repository and Borehole Scenarios (#200181)
  - Forecasting Marine Sediment Properties On and Near the Arctic Shelf with Geospatial Machine Learning (#213019)
- Project to test chipset and reader in FY19 and then in out years chip redesign on basis of preliminary test results
- DOE Fossil Energy-funded experimental and modeling projects on fractures and chemistry, in partnership with the University of Utah (Pania Newell)



- LDRD Fracture (PI –Criscenti, 2016-2018) Professor Adri van Duin was a subcontractor responsible for developing reactive force field parameters for reactions between silica and aqueous solutions

# Questions for the Board

- Are these universities the most appropriate ones with which Sandia's Earth Science Research Foundation to partner?
- Given these short lists of collaborations between Sandia and these universities, do we appear to be missing opportunities to expand our partnerships with them?