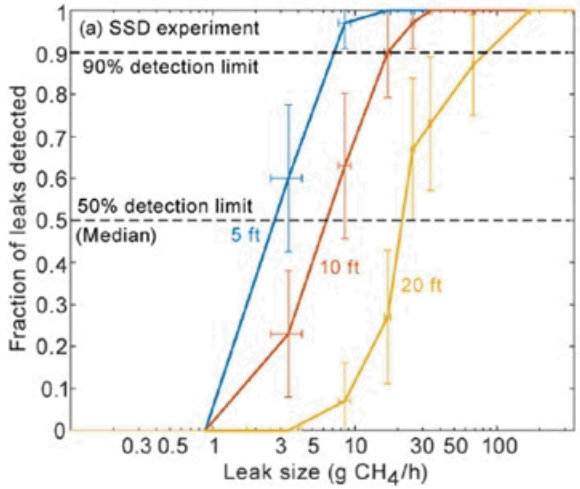
CHAMA: Optimization of Emissions and Other Monitoring Networks

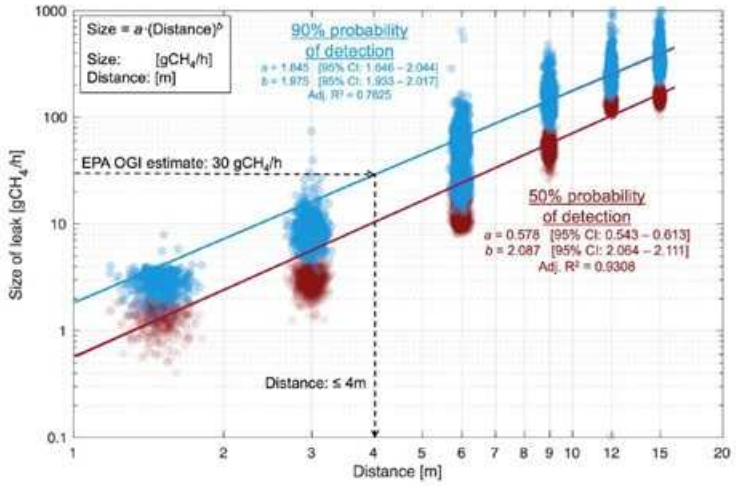
SAND2018-1410PE

Sandia National Laboratories

Field validation



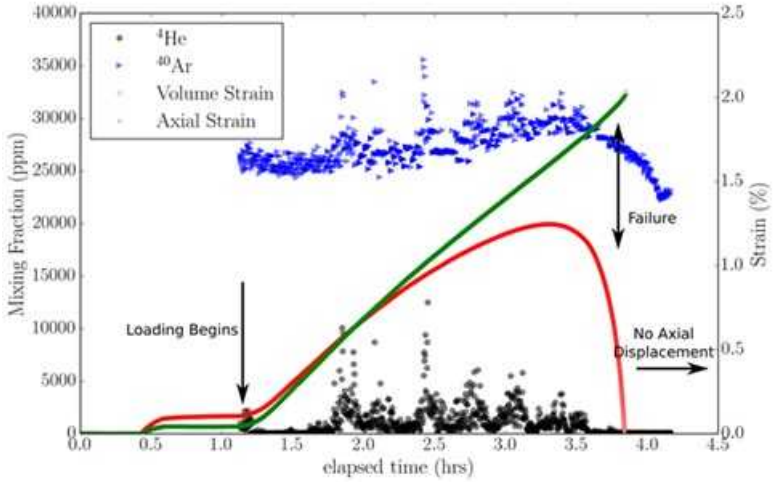
Chama is an <u>open-source general purpose sensor placement optimization software tool</u> currently able to quickly solve optimization problems with 1 million simulation data points and a 1000 feasible sensor locations on a desktop system.

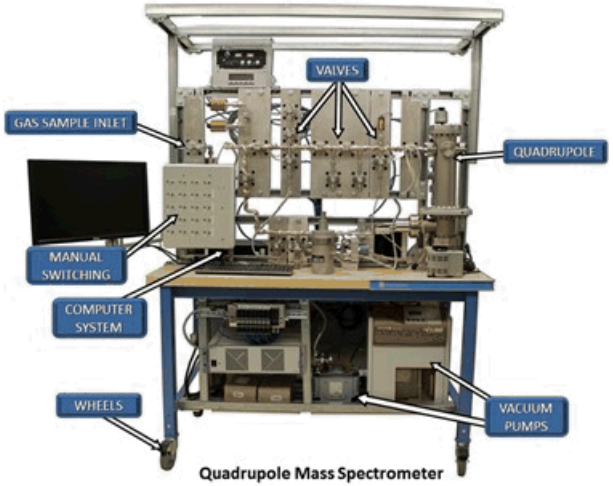


POC: Kate Klise, Sandia National Laboratories, 505-284-4456, kaklise@sandia.gov

Real-time Sensing and Analysis to Detect Failure Precursors in Natural and Engineered Materials

- Acoustic emissions (AE, energy emitted from microcracking expressed sonically) details locations of microstructural deformation
- Real-time trace-gas release/detection (doped or natural) as a precursor signal for deformation in natural and engineered materials.





Quadrupole Mass Spectrometer

Bauer, S. J., W. P. Gardner, and H. Lee (2016), Release of radiogenic noble gases as a new signal of rock deformation, Geophys. Res. Lett., 43, 10,688–10,694, doi:10.1002/2016GL070876.

POC: Steve Bauer, Sandia National Laboratories, 505-844-9116, sjbauer@sandia.gov

SNL / Advanced Manufacturing Lab (AML) Structural Health Monitoring Sensors and Self- Healing Materials

Sandia National Laboratories

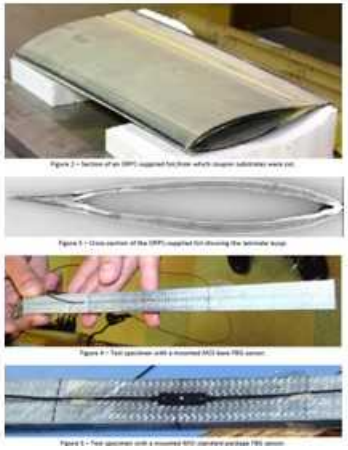
Pacific Northwest NATIONAL LABORATORY

MONTANA STATE UNIVERSITY

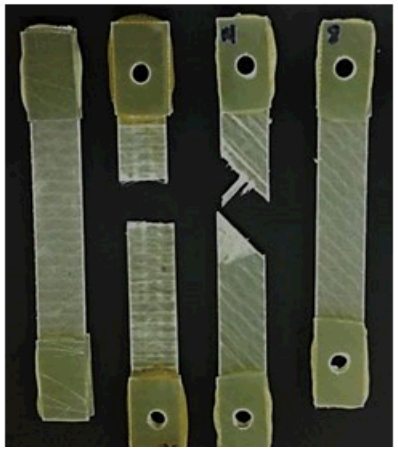
BYU

Biofouling & Marine coatings assessment

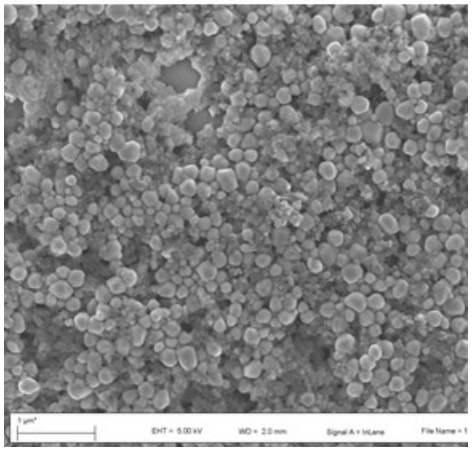
Structural Health Monitoring

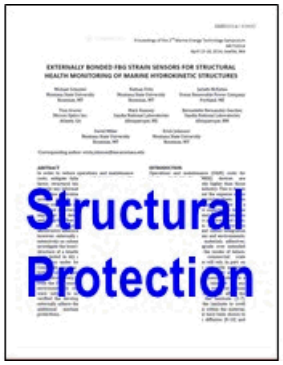


MHK Environmental Effects on Composites



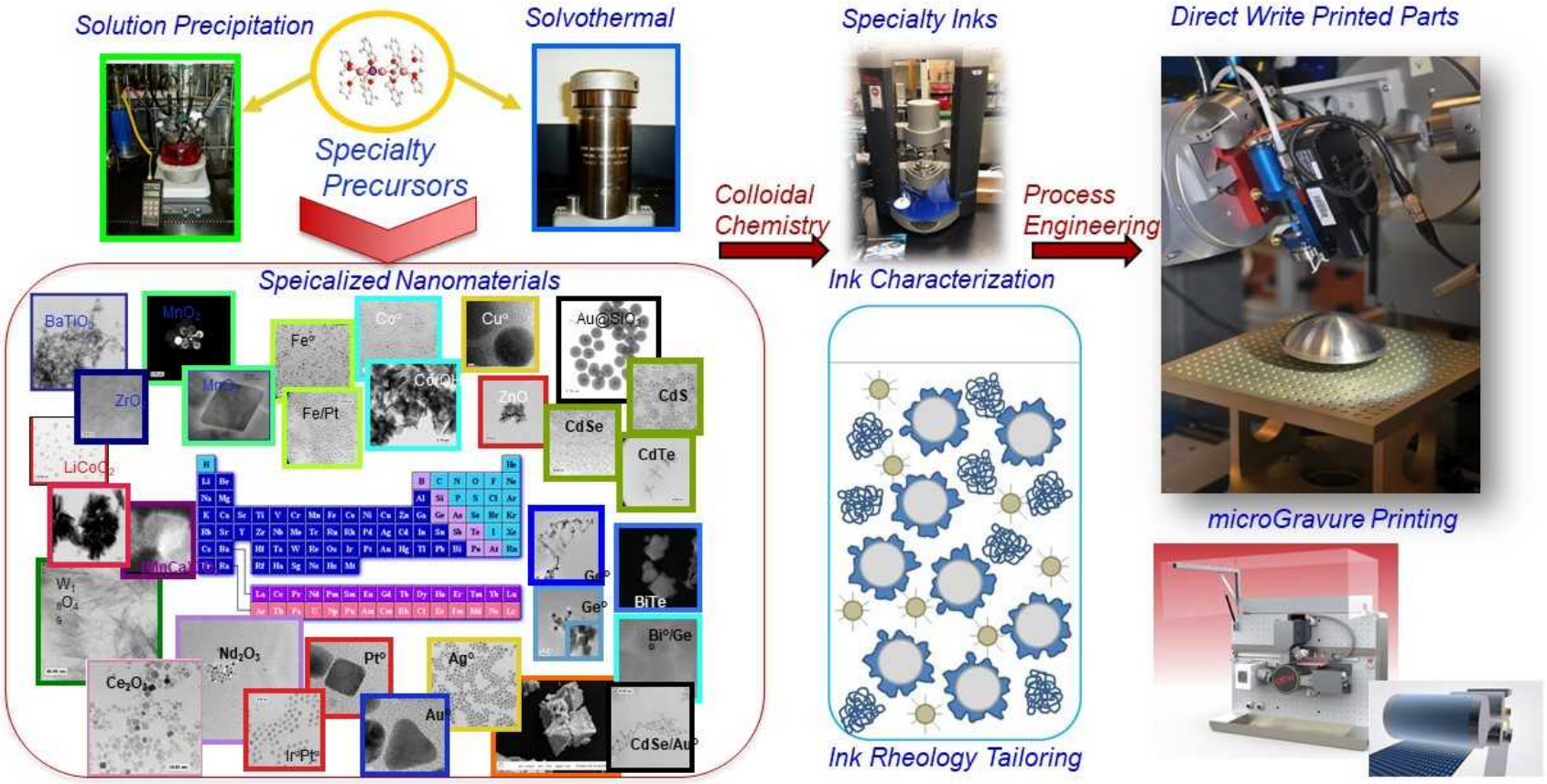
Nanomaterials Development





POC: Randy Schunk, Sandia National Laboratories, 505-272-7603, prschun@sandia.gov

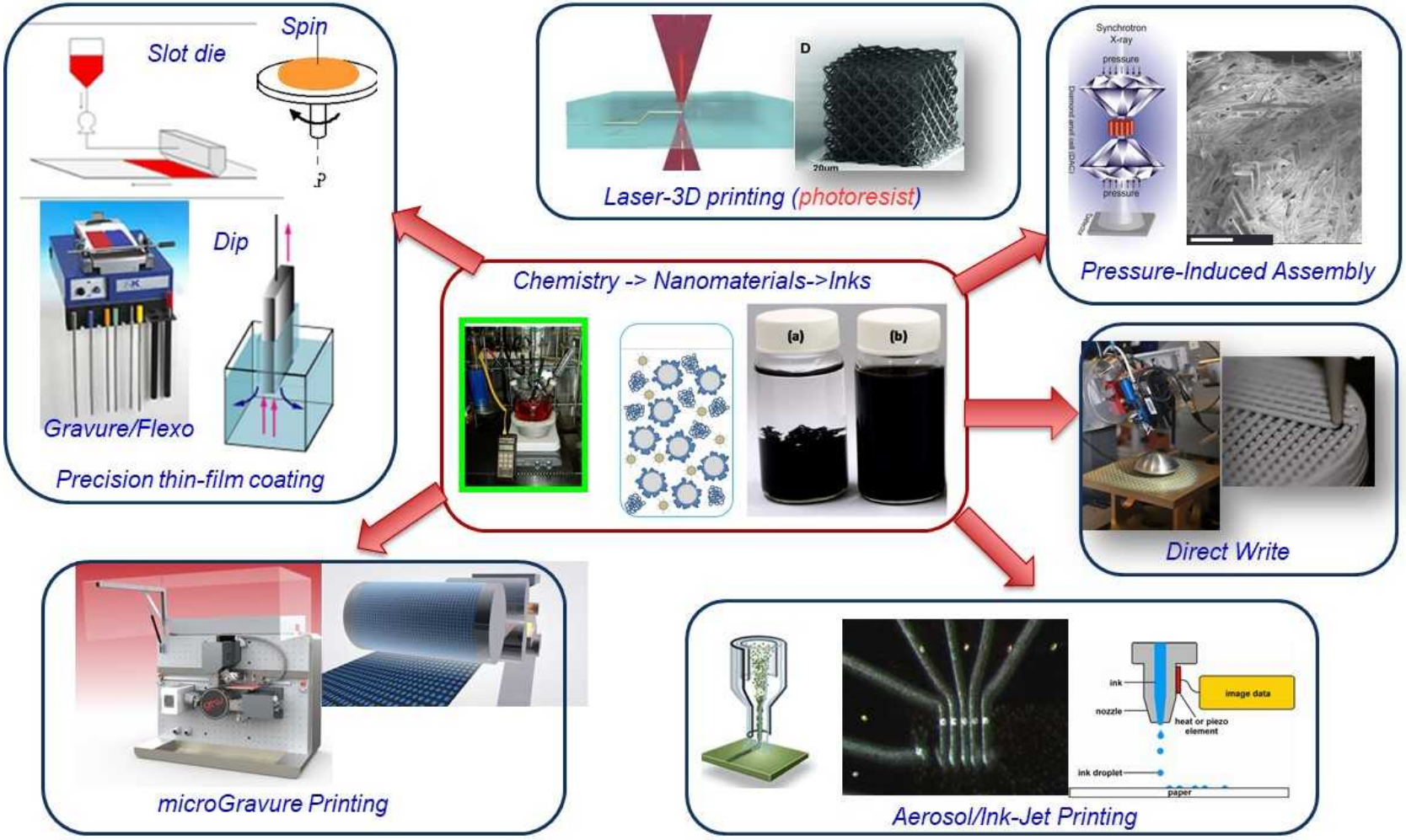
AML Nano-Materials to Components



From specialized, tailored nano-materials to process-able inks requires chemical synthesis, colloidal chemistry, rheology/characterization, process engineering

POC: Randy Schunk, Sandia National Laboratories, 505-272-7603, prschun@sandia.gov

AML Materials Processing Routes for Smart Pipelines Sensor Development



POC: Randy Schunk, Sandia National Laboratories, 505-272-7603, prschun@sandia.gov