

**Brief: SNL will be able to provide well-calibrated models to weapons systems analysts by integrating an engine for constitutive model calibration with the GRANTA materials database.**

Researchers at Sandia National Laboratories have integrated the GRANTA materials database with the MatCal calibration engine to calibrate material models from characterization data. GRANTA is gaining acceptance across the NNSA Tri-lab complex and is being populated with weapons-specific test data by Sandia experimentalists. To use that data to create material models for use by weapons systems analysts, MatCal has been enabled import calibration data and test conditions from GRANTA to quickly and reproducibly produce a calibrated set of parameters for a given constitutive model. The team is currently working to store the parameters characterizing material behavior in GRANTA to make them accessible by all weapons analysts. An illustration of the flow of data from experiments to models to analysts is shown in the figure (below). (POC: Reese Jones, [rjones@sandia.gov](mailto:rjones@sandia.gov))

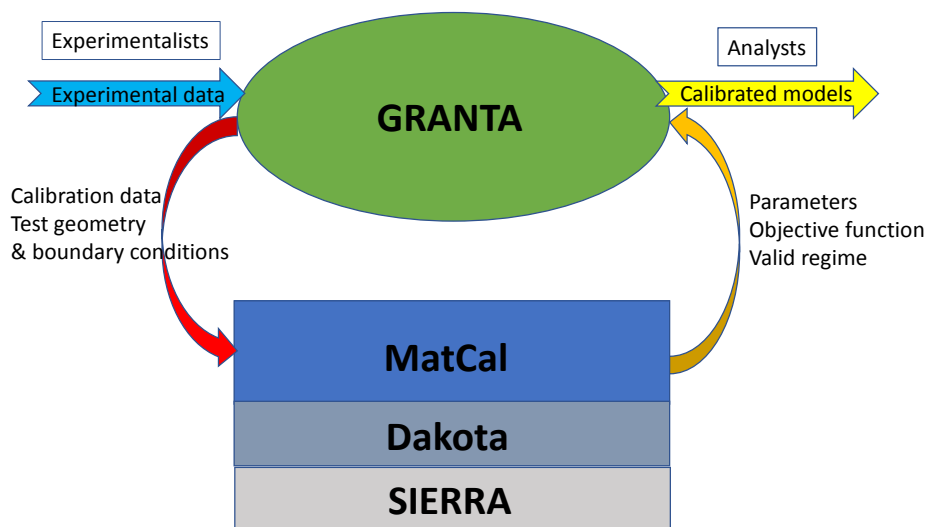


Figure: Flow of data from experiments to models. GRANTA provides a central location to store and access experimental data and, ultimately, corresponding model parameters. MatCal, coupled with Dakota for optimization and SIERRA Mechanics for simulation, provides a robust engine for model calibration.

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