

LA-SIGMA Breakout Sessions

Electronic and Magnetic Materials

Science Challenge

Electronic materials display multiple length scales, from the atomistic to the macroscopic. Even our atomistic theories and their algorithms need to be more nonlocal in space.

Strongly-correlated materials have complex phase diagrams and remarkable sensitivity to external fields. Can we design new materials with desired properties on the computer?

Diversity, External Engagement, and Workforce Development

Few of the many REU students in Louisiana go on to graduate study here. We could offer them summer workshops on electronic materials .

We could send out faculty to recruit graduate students . Ideally the same faculty member would visit a given Louisiana undergraduate program every two years.

Scientific Collaboration

Efficient algorithms and codes for nonlocal approximations could be developed in collaboration with the computational teams.

Our students could be sent to collaborate and learn in computational and experimental groups. Code user-interfaces accessible to experimentalists could be developed.

Teaching needs

We could incorporate computational science elements into basic undergraduate courses, and develop shared teaching materials for these modules.

We could put various computational-science, materials-science, and atomistic-methods lectures and courses on the web.