

Synchrotron and Neutron for Energy Materials

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Synchrotron X-rays and neutron scattering provide indispensable scientific resources for investigating the structure and dynamics of materials across multiple length and time scale in multidisciplinary research fields. While synchrotron X-rays offer high brilliance, fine spatial resolution, and element-specific sensitivity, neutrons provide unique capabilities in light-element detection, magnetic structure determination, and deep penetration into bulk samples. In addition, neutrons and X-rays interact with matter in different ways, thus are often used as complementary tools for studying materials at the electronic, atomic and molecular levels. In this talk, we will discuss the difference and similarity of neutrons and synchrotron x-rays, and their complementary use in energy materials research. We will show some recent work on synchrotron and neutron studies of battery materials.