



*quantum beam
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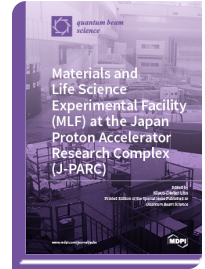
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Materials and Life Science Experimental Facility (MLF) at the Japan Proton Accelerator Research Complex (J-PARC)

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The Materials and Life Science Experimental Facility (MLF) at the Japan Proton Accelerator Research Complex (J-PARC) is a landmark large user-facility producing neutron and muon beams. Those beams feed over 20 beamlines hosting world-class instruments for the investigation of matter across the disciplines of materials science, solid state physics and chemistry, biological and life sciences, geology, engineering, and their wider applications. Neutron and muons can probe matter in very peculiar ways. They are sensitive to magnetism and hydrogen atoms, can penetrate materials deeply or probe surfaces, and allow one to investigate the fundamental dynamics of the materials. In the past three to four decades, neutron scattering has largely contributed to the development of modern technology, such as computers, mobile phone technology, electro-chemistry, the transportation industry, and the pharmaceutical industry. MLF is a world leader in such characterization technology and serves yearly to about 700 research experiments conducted from users of 34 countries around the world. The present book describes technical details of the proton accelerator, the neutron spallation source, the muon facility, and all the beamlines with engineering realization, specifications, and relevant examples.



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