

Research Project on Nuclear Resonant Scattering in Japan

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Recently, the advent of third generation synchrotron radiation sources permitted us to use high-quality X rays, which cannot be obtained with previous X-ray sources. We, therefore, started a research project titled “Studies on nuclear resonant scattering methods for materials science”, which is performed in the program of CREST (Core Research for Evolutional Science and Technology) of JST (Japan Science and Technology Agency). In this research, we develop advanced nuclear resonant scattering methods and instruments such as high-resolution monochromaters, detectors for high-energy regions, nuclear monochromaters generating high-intensity X-rays with the order of neV width. Using the methods, precise element- and site-specific studies on multi-extreme conditions, nano-materials, ultra-trace constituents in materials can be performed.