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Gamma-ray spectroscopy at RCNP, Osaka University

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The Research Center for Nuclear Physics, Osaka University, is an accelerator facility with an AVF cyclotron and a ring cyclotron, which can be used for various nuclear physics research. To advance nuclear structure research by gamma-ray spectroscopy, we have initiated the CAGRA project, based on the international collaboration among Japan, the U.S., and China. CAGRA array consists of up to 16 Ge Clover detectors with BGO Compton shields and a digital data acquisition system employing GRETINA digitizers is used, which enables high-rate data taking. At RCNP cyclotron facility, there are various experimental capabilities such as high-resolution spectrometer, Grand Raiden, low-energy RI beam facility, EN beam line, and the DC muon beam facility, MuSIC. By combining the CAGRA with these devices, many physics opportunities will be provided. So far, CAGRA campaign experiments at EN beam line and Grand Raiden were successfully performed. The CAGRA experiment at JAEA to study heavy actinoid have also been performed. Experiments at RIBF will provide for further experimental studies of unstable nuclei. In this talk, an overview of gamma-ray spectroscopic studies at RCNP, including recent experimental results, and future prospect will be presented.

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