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Development of HTS magnets for application KICHIJI HATANAKA, MITSUHIRO FUKUDA, TETSUHIKO YORITA, HIROSHI UEDA, YUUSUKE YASUDA, KEITA KAMAKURA, YOSHIYA MORITA, HIROYOSHI YAMANE, RCNP, Osaka University, TAKEO KAWAGUCHI, KT-Science — We have been developing magnets utilizing high-temperature superconducting (HTS) wires for this decade. We built three model magnets, a mirror coil for an ECR ion source, a set of coils for a scanning magnet and a super-ferric dipole magnet to generate magnetic field of 3 T. They were excited with AC/pulse currents as well as DC currents. Recently we fabricated a cylindrical magnet for a practical use which polarizes ultracold neutrons (UCN). It consists of 10 double pancakes and the field strength at the center is higher than 3.5 T which is required to fully polarize 210 neV neutrons. It was successfully cooled and excited. The magnet was used to polarized UCN generated by the RCNP-KEK superthermal UCN source, One dipole magnet has been manufactured which is used as a switching magnet after the RCNP ring cyclotron and is excited by pulse currents. It becomes possible to deliver beams to two experimental halls by time sharing. Their designs and performances are presented in the talk.

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