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First commissioning results of the waveguide RF Wien filter

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The JEDI (Jülich Electric Dipole Investigations) Collaboration aims to carry out a long term project for the measurement of the permanent electric dipole moments of charged particles in a storage ring. As a proof-of-concept, the COoler SYNchrotron (COSY) was equipped with a waveguide RF Wien filter designed to operate at some harmonics of the spin precession frequency ranging from 0.1 to 2 MHz. This device maintains the corresponding ratio between the RF electric and magnetic fields necessary not to induce any beam excitation and most importantly acts as a spin flipper.

In the course of 2017, the waveguide RF Wien has been successfully commissioned and tested. The ability of the device to produce a Lorentz Force compensation and to rotate the particles' polarization vector has been verified. Driven vertical spin oscillations and vertical polarization build-up has been observed.

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