

ESR - laser cooling

Michael Bussmann (FZD) and Weiqiang Wen (IMP-CAS) visited GSI and the TU Darmstadt to discuss the planning and progress concerning the upcoming beamtime for laser cooling of C³⁺ at the ESR. With the development of the new Schottky pick-up system and the new Beam Profile Monitor, the diagnostic possibilities at the ESR have increased considerably. FZD offers the possibility to use a pulsed laser system for the experiment, which will be used to demonstrate broadband laser cooling. The CW laser system (@ 257 nm) for laser cooling featuring fast (ms) scanning over a broad (30 GHz) spectral range, under development at the TU Darmstadt (Prof. Walther), is approaching completion. The detectors for the new optical detection system at the ESR will be ordered soon (Prof. Birkl). Weiqiang Wen is setting up a new data acquisition and control system for the laser cooling experiment, which is based on the "Compact RIO system" of National Instruments. This system will allow for laser control and data acquisition from: photomultipliers, Schottky signal, Beam Profile Monitor, and the main ESR parameters (ion current, cooler voltage and current).