

## Nuclear structure and reaction studies with exotic nuclei at FRS-ESR

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Nuclear physics with exotic nuclei in storage rings was pioneered at the SIS-ESR facility in combination with the fragment separator FRS. Already the first experiments in the early 90'ies gave access to ground-state properties like masses and half-lives and indicated the reserach potential of this novel approach. Many new data have been obtained and interesting phenomena have been explored, e.g. the mass surface was mapped over large areas of the chart of nuclei, isomer studies of long-lived states (with half-lives of the order minutes) became possible, the modification of decay properties for highly-charged high-Z exotic nuclei was observed, and new decay modes, like the beta-decay to bound final states, were studied for the first time. A few years ago, direct reaction experiments on internal targets using inverse kinematics have started : transfer (p,d) and pickup (p,gamma) reactions of astrophysical interest have been performed with stable isotopes at energies approaching the Gamow-window, while elastic (p,p) and inelastic (p,p') scattering experiments have been performed with secondary beams of the unstable double magic isotope  $^{56}\text{Ni}$  quite recently (see contribution by M. von Schmid to this conference). In this talk, achievements will be reviewed, recent results will be presented, and future perspectives will be addressed.