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What is NEXT? A new setup to study heavy,Neutron-rich, EXotic nuclei produced in multinucleon Transfer reactions

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Neutron-rich, heavy, EXotic nuclei around the neutron shell closure at N=126 and in the transfermiumregion are accessible via multinucleon Transfer reactions which feature relatively high cross sections.However, the wide angular distributions of the multinucleon transfer products lead to experimentalchallenges in their separation and identification.In order to overcome these obstacles, we are building the NEXT experiment [1] at the PARTREC facilityin Groningen. The AGOR cyclotron at PARTREC delivers high intense heavy ion beams at energies suitedfor transfer reactions. The production target for the transfer reactions will be placed inside a 3-Tsolenoid magnet which has recently been delivered to our facility. Within the magnet the transferproducts are separated according to their magnetic rigidities. The ions of interest are focused by themagnet towards a gas catcher where they are slowed down. From the gas catcher the ions aretransferred and bunched by a newly developed stacked-ring ion guide [2] into a Multi-Reflection Time-of-Flight Mass Spectrometer (MR-ToF MS) [3]. The MR-ToF MS allows for precision mass measurementsand provides isobaric separation for background-free decay spectroscopy.In my seminar, we will present an overview of the NEXT setup, its current status and the plannedexperimental program.