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**Simulation of the NSCL Cyclotron Gas Stopper** NINAD JOSHI, NSCL, GEORG BOLLEN, SHAILENDRA CHOUHAN, DAVID MORRISSEY, STEFAN SCHWARZ, NSCL — Thermalization in a buffer gas is becoming the method of choice for converting beams of rare isotopes produced via projectile fragmentation after in-flight separation into low-energy beams. These beams allow ISOL-type experiments to be conducted on projectile fragmentation products, such as precision mass measurements with traps or laser spectroscopy, and further transport for reacceleration. Currently available systems for high-energy beams employ a linear gas cell design filled with 0.1-1 bar of helium. A new device is being constructed at the NSCL/MSU. The new system is based on slowing down the fast ions in a sector-focusing cyclotron magnet in a chamber filled with Helium buffer gas at low pressure. RF-guiding techniques are used to extract the ions. Compared to linear gas stopper systems such a device promises higher efficiencies and faster extraction in particular for light ion beams and higher beam rate capability. This contribution will summarize the status of the ongoing design of the cyclotron gas stopper, with emphasis on detailed simulations with an optimized magnet including simulations of beam injection and stopping in the full 3D magnetic field.

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