



Contribution ID: 12

Type: not specified

Simultaneous measurement of fragment mass, energy, and angular distributions from the $^{234}\text{U}(\gamma, f)$ reaction

Thursday, 31 October 2024 11:00 (25 minutes)

Photon-induced reactions provide unique data on nuclear fission due to their selectivity on excitations of low multipolarity and thereby contribute significantly towards a detailed microscopic description of the nuclear fission process. In particular, using quasi-monochromatic linearly-polarized photons to induce the fission process gives access to information about the nuclear energy landscape around the fission barrier and allows determining transition states and channels through which the fission process proceeds. A position-sensitive twin Frisch-grid ionization chamber is used in order to measure mass, total kinetic energy and polar as well as azimuthal angular distributions of the fission fragments simultaneously, enabling examination of correlations between these observables.

This contribution will present an overview of our recent experimental campaigns at the High-Intensity γ -Ray Source (HI γ S) at Triangle Universities Nuclear Laboratory (TUNL). Additionally early data currently under analysis from a $^{234}\text{U}(\gamma, f)$ experiment investigating multiple quasi-monochromatic excitation energies, including excitation energies near the fission barrier, will be presented.

Primary authors: WENDE, Vincent (Institut für Kernphysik, Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany); Dr MALONE, Ronald (U.S. Naval Academy, Annapolis, Maryland, USA); Prof. BALABANSKI, Dimiter (ELI-NP, IFIN-HH, Magurele, Romania); Prof. ENDERS, Joachim (Institut für Kernphysik, Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany); Dr FINCH, Sean (Triangle Universities Nuclear Laboratory, Duke University, Durham, NC, USA); Dr FRIESEN, Forrest (Triangle Universities Nuclear Laboratory, Duke University, Durham, NC, USA); Dr GÖÖK, Alf (Uppsala Universitet, Uppsala, Sweden); Prof. HOWELL, Calvin (Triangle Universities Nuclear Laboratory, Duke University, Durham, NC, USA); Dr MEIER, Maximilian (Institut für Kernphysik, Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany); OBERSTEDT, Andreas (ELI-NP, IFIN-HH, Magurele, Romania); OBERSTEDT, Stephan (EC-JRC Geel, Belgium); Dr PECK, Marius (Institut für Kernphysik, Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany); Prof. PIETRALLA, Norbert (Technische Universität Darmstadt, Department of Physics, Institute for Nuclear Physics, Darmstadt, Germany); Dr RAMIREZ, Anthony (Lawrence Livermore National Laboratory, Livermore, CA, USA); Dr SILANO, Jack (Lawrence Livermore National Laboratory, Livermore, CA, USA); Dr STEINHILBER, Gerhart (Institut für Kernphysik, Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany); Dr TONCHEV, Anton (Lawrence Livermore National Laboratory, Livermore, CA, USA); Prof. TORNOW, Werner (Triangle Universities Nuclear Laboratory, Duke University, Durham, NC, USA)

Presenter: WENDE, Vincent (Institut für Kernphysik, Fachbereich Physik, Technische Universität Darmstadt, Darmstadt, Germany)

Session Classification: Oral contributions VIII