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Exploring Long-Lived Shape Isomers in Photofission Fragments Using the upgraded VEGA spectrometer at the FLNR of the JINR.

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Some decent physics has already been realised by the FOBOS group at the JINR. This includes the confirmation of a rare ternary decay mode in low excited heavy nuclei referred to as Collinear Cluster Tri-partition (CCT). During the experiments, the challenges of background noise in the experimental area which generated from the MT-25 microtron were addressed with radiation shielding. However, to achieve necessary holistic stability with the experimental works, it was necessary to upgrade the Velocity-Energy Guide based Array (VEGA) spectrometer, which is in progress. The project will investigate one by one the photofission fragments captured by electrostatic field of Electrostatic Guide System (EGS) and transported to the detector. Amongst other anticipated objectives are to study isomeric lifetimes beyond 400 ns and target up to 600 ns. Let us explore the involvement of South Africa, iThemba LABS and the University of Zululand as well as opportunities for others interested. Also, the future of microtron electron beams for the region.

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