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RIPS upgrade and physics programs HIDEKI UENO, AKIHIRO YOSHIMI, RIKEN Nishina Center, KOICHIRO ASAHI, Tokyo Tech — The upgrade of RIPS has been proposed in the phase-II program of RIKEN RI Beam Factory (RIBF) project. In this upgrade, the former fragment separator RIPS will be equipped with a new beam line that delivers beams of 115A-MeV heavy ions extracted from the IRC cyclotron by skipping the final acceleration of SRC. This beam energy is high enough to produce radioactive isotope beams (RIBs) via the projectile-fragmentation reaction. Thus, compared with RIBs produced in the present AVF-RRC acceleration scheme, their production yield are drastically increased by this upgrade, especially in the mass region heavier than Kr. Remarkably, RIPS further enhances research opportunities on spin-related subjects such as nuclear structure studies through electromagnetic nuclear moments: it has been revealed that RIBs produced at this energy can be spin-oriented independently of their atomic and chemical properties. Also, the research subjects include not only nuclear moments but also material science by means, e.g., of the β -NMR, γ -PAD, γ -PAC, laser, and in-beam Mössbauer methods, because RIBs of this energy allow for a scheme to implant them into sample materials with limited thickness and thus stopped-RI type experiments will be conveniently carried out.

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