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Gamma Resist Experiment at SPARC_LAB

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Gamma Resist (γ -Resist) is the name of a new proposed experiment to be hosted at INFN laboratories in Frascati. The purpose of the experiment is to set up an all optical γ -ray source driven by Thomson/Compton scattering between laser plasma generated electrons and a counterpropagating laser pulse. The 250 TW FLAME laser will be used to drive the whole process. Compactness, tunability and photon flux make this source of γ -rays interesting for a range of applications, possibly including nuclear resonance fluorescence (NRF), compact cold positron source, provided electron bunch parameters and interaction configuration are optimized. Moreover, the proposed experiments at FLAME could help developing detection capabilities and solving technical issues related to the identification of physical processes like radiation friction which, according to recent models, are expected to affect the properties of the γ -rays emitted at the extreme intensities foreseen in future bigger scale facilities.

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