

10. Experiments with the ELI-NP High Power Laser System

1. Production of Neutron-Rich Nuclei around the $N = 126$ Waiting Point of the r -Process via the Fission-Fusion Reaction Mechanism using a Laser-Accelerated Th Beam
2. From Radiation Pressure Acceleration (RPA) and Laser-Driven Ion Pistons to Direct Laser Acceleration of Protons at Intensities up to 10^{24} W/cm²
3. Deceleration of Very Dense Electron and Ion Beams
4. The development and application of ultra-short duration high brilliance gamma rays probes for nuclear physics
5. A Relativistic Ultra-thin Electron Sheet used as a Relativistic Mirror for the Production of Brilliant, Intense Coherent γ -Rays
6. Nuclear Techniques for Characterization of Laser-Induced Radiations
7. Modelling of High-Intensity Laser Interaction with Matter
8. Studies of enhanced decay of ^{26}Al in hot plasma environments
9. Nuclear phases and symmetries

ELI-NP High Power Laser + γ/e^- Beam

1. Probing the Pair Creation from the Vacuum in the Focus of Strong Electrical Fields with a High Energy γ Beam
2. The Real Part of the Index of Refraction of the Vacuum in High Fields: Vacuum Birefringence
3. Cascades of e^+e^- Pairs and γ -Rays triggered by a Single Slow Electron in Strong Fields
4. Compton Scattering and Radiation Reaction of a Single Electron at High Intensities
5. Nuclear Lifetime Measurements by Streaking Conversion Electrons with a Laser Field