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Laser-Plasma experiments at ELI-NP PETRU GHENUCHE, FLORIN NEGOITA, BOGDAN DIACONESCU, Extreme Light Infrastructure-Nuclear Physics (ELI-NP), IFIN-HH, Romania, DAN STUTMAN, Extreme Light Infrastructure-Nuclear Physics (ELI-NP), IFIN-HH, Johns Hopkins University — Recent advances in ultra-high power lasers architecture brings unprecedented intensity and pressure regimes within our reach. Extreme Light Infrastructure – Nuclear Physics (ELI–NP) is a new large laser facility, part of the ELI European research infrastructure that will benefit from these upgrades in the next years. It has the ambitious goal to use extreme electromagnetic fields generated by two 10 PW laser beams for a broad range of research topics in fundamental physics at the frontier of plasma physics, nuclear physics and astrophysics, together with applied research in materials and life sciences. Here we describe the facility implementation status and challenges and the commissioning experiments related with laser-plasma interaction. Rom. Rep. Phys. 68, ELI-NP Technical Design Reports (2016).

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