



Program FYSICA 2019
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www.fysica.nl

Plenary Nobel Prize in Physics 2018

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Title: **Passion for Extreme Light**

Abstract: Hitherto, the laser has been very successful to study atomic physics. The possibility to amplify lasers to extreme peak power offers a new paradigm unifying the atomic and subatomic worlds, to include Nuclear physics, High Energy Physics, Astrophysics and Cosmology. This application needs extreme intensities. At the moment we are experiencing a rush toward the 10 PW led by the 3-pillar ELI infrastructure along with Apollon in France and similar infrastructures in Russia, USA, China and Korea.

The applications include x-ray and TeV /cm with the goal to go beyond the High Energy Standard Model and contribute to apprehending Cosmic Acceleration and revealing Dark Matter. The societal applications are also numerous with eye surgery, proton therapy, short-lived isotope production, nuclear waste transmutation and the like.