25e Congrès Général de la Société Française de Physique

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Overview of short wavelength Free Electron Lasers

More than 50 years after the lasers'discovery, VUV- X light sources are actively developed around the word. Among then, accelerator based light sources have known a wide growth. They rely on emission of synchrotron radiation by accelerated relativistic charged particles. In the case of a Free Electron Laser, the longitudinal coherence is achieved by setting in phase the electrons, thanks to an energy exchange between the electrons and a light wave (the spontaneous emission or an external seed) resulting in bunching and further amplification of the light. After introducing the main historical steps of Free Electron Laser development, the landscape of VUV-X ray Free Electron Laser sources will be sketched. These light sources provide short pulses, in the femtosecond range, and extremely high brilliance. The different processes and schemes will be given. Further developments envision paths towards advanced and compact FELs, with flexible characteristics aiming at answering user needs...

Choix de session parallèle

6.4 Résultats scientifiques récents obtenus avec les XFEL

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