

Meeting Grand Challenges in Science with New Light Sources

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Invité par Paul DUMAS

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Amphi du Bât. Accueil Soleil

In the United States, the National Academy of Sciences, and the Department of Energy's Office of Science have recently identified a number of "Grand Challenges in Science". Addressing them will require a new suite of tools, among them new light sources. This talk will discuss these new scientific challenges, and will then report on the physics and enabling technology of the latest round of brightness improvements, which have been achieved in the IR and THz range at Jefferson Lab but whose principles are extendable to light sources at shorter (uv to x-ray) wavelengths. Examples of scientific applications will also be given. The JLab facility is based on an Energy Recovered Linac (ERL)[1], rather than a storage ring. The power is then enhanced by multiparticle coherent effects[2], while the source size is smaller because the horizontal emittance is approximately equal to the vertical emittance (round beams). In addition the bunch lengths are in the 100's of femtosecond range, allowing ultrafast phenomena to be studied. Finally, unlike conventional linac-based machines an ERL can operate continuously.

[1]. G.R. Neil et al, Phys. Rev. Let. 84, 662 (2000).

[2]. C. J. Hirschmugl, et al, Physical Review A44, 1316, (1991).

Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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