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Towards predictive capabilities in computational modelling of alloys for nuclear applications

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Radiation damage in nuclear materials, both structural and fuel, is one of the main concerns when evaluating plant components performance and lifetime. The renaissance worldwide of the interest in nuclear energy raises expectations on a new kind of nuclear power plants, more efficient, safer, longer lived, less polluting, and proliferation resistant. These particular expectations lead to extreme conditions that call for the development of new materials for structural components and nuclear fuels, able to sustain unprecedented amounts of damage without loosing their specifications.

At the same time, materials science is witnessing an explosion of novel experimental, theoretical, and computational techniques to manipulate properties at the atomic scale, creating novel structures with features tailored to accomplish tasks unimaginable only a few years ago.

Could these two avenues be combined to produce a novel kind of material that sustain irradiation without seeing its properties deteriorated ? This talk addresses this question from the theoretical and computational perspectives, in combination with novel approaches to long-standing questions regarding the physics of radiation damage.

Mercredi 27 septembre 2006 à 10h30

N.B **:** ***Les visiteurs de nationalité étrangère hors Union Européenne sont priés de bien vouloir avertir impérativement 3 semaines à l'avance - les visiteurs de l'Union Européenne 1 ou 2 jours avant le séminaire - le Secrétariat du Service de leur entrée sur le Centre :***

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