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**Fast ion transport in presence of magnetic islands**[1] JULIO MARTINELL, LEOPOLDO CARBAJAL, RODRIGO SAAVEDRA, Universidad Nacional Autonoma de Mexico — The presence of fast ions in current and future magnetic fusion experiments is commonplace including NBI and alpha particles from fusion reactions. They are expected to be well confined in order to deliver their energy before escaping the plasma. MHD perturbations usually produce magnetic islands which affect plasma confinement and they are regarded as deleterious. However, there is some evidence that rational surfaces may be related to the presence of transport barriers in devices such as stellarators [1]. Therefore, it is interesting to study the influence of magnetic islands on fast ions. In this work we present Monte Carlo simulations on the transport of ions based on two different codes that use guiding center motion and full orbit computations in toroidal geometry. The presence of the islands is included by adding a magnetic perturbation at a rational surface. The flux of particles is then analyzed from the inner plasma region across the island as function of the island width and the particle energy. Results will be presented showing that the transport across the island can be actually reduced for some particular cases, relative to the no-island case, indicating a sort of transport barrier. [1] D. Lopez-Bruna et al. Euro. Phys. J. 82, 65002 (2008)

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Julio Martinell
Univ Nacl Autonoma de Mexico

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