



CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO NAZIONALE DI OTTICA

SEMINARIO

venerdì 1 febbraio 2013 alle ore 15,00 – Aula 44

Area della Ricerca di Pisa, Edificio “A” primo piano

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Laser cooled cesium atoms as a focused ion beam source

FIB (Focused Ion Beam) technology is an essential tool in many fields such as semi-conductors industry. It can produce an ion beam with an adjustable diameter (down to 2.5 nm resolution). Nowadays, FIB technology is based on the LMIS (Liquid Metal Ion Source) system mainly using the gallium ion. However, the gallium element shows some drawbacks such as large energy dispersion in the beam and sample contamination. Looking for new ion sources is necessary to reduce these disadvantages and improve the performances. Different groups are working to produce an ion source starting with cold atoms. Here, we proposed to elaborate an ion source based on ultracold plasma from an atomic beam. The ions will be produced through an original scheme using the ionization of Rydberg atoms created near ionization threshold. Cesium element has been chosen because for its reactivity useful in analysis. This new ion cesium source is developed in Orsay Physics with the collaboration of his academic partner Aimé Cotton Laboratory. In this presentation I will make a short review of the ion sources with cold atoms and describe the status of our source.