SFB/TRR 21 - Seminar

16. December 2011, Stuttgart

Nicolas Huet

(University of Liège, Belgium)

Towards laser cooling of Iron atoms

I will present a new cold atom experimental setup that we are currently building in view to work with iron atoms, an atomic species never cooled down so far. We have a long term goal of potential iron Bose-Einstein condensates with all their applications, particularly in the field of atom lasers. We are also interested in high resolution laser spectroscopy experiments accessible with cold atom setups. Lots of accurate spectroscopic data remains unknown, even for iron. We have designed a 2 UV laser beam configuration to achieve laser cooling. A dedicated Zeeman slower has been built on the basis of the two UV radiations. I will describe the general scheme of our setup and report our experimental results obtained so far. In particular, our laser stabilization properties and high-resolution spectroscopic data about isotopic effects in iron will be presented.

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Universität Stuttgart, NWZII, Raum 3.123
Pfaffenwaldring 57, 70569 Stuttgart

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