

## **Silvia Cereda**

Silvia Cereda graduated in Materials Science on October 2004 at the University of Milano Bicocca with a specialization in the Theoretical and Computational Condensed Matter Physics (grade: 110/110 cum laude). During her Thesis activity she studied from a theoretical point of view surface processes of Ge-based three-dimensional quantum dots, working within the group of Professor Leo Miglio at the Department of Materials Science. After graduation she won a three-years PhD grant in Materials Science and had therefore the possibility to carry on her research within Leo Miglio's group, under the direct supervision of Dr. Francesco Montalenti, her Thesis advisor.

Under the European grant NANOPHOTO, aimed at setting up nanocrystalline Si-based photovoltaic devices, she tackled the problem of providing an atomic-scale description of the physical and chemical processes involved during the actual growth of such peculiar silicon films.

Her detailed calculations, exploiting a collaboration with experimental and theoretical groups, in particular with the teams of Prof. Carlo Cavallotti and Dr. Giovanni Isella of the Politecnico of Milano, she was enabled to highlight some atomic-scale mechanisms playing a key role in the film growth.

Therefore combining accurate first principle calculations of atomistic processes with longer time scale analysis, as Monte Carlo simulations, Silvia Cereda was able to understand how to increase the growth rates and how to drive the film morphology towards more crystalline fractions improving by the same time the film quality as well. A summary of some of the most interesting results was published in February 2008 on the high impact factor journal, Physical Review Letters.

In December 2007 Cereda discussed her PHD Thesis, successfully ending her Doctorate in Materials Science.

Dott Cereda will now start a post-doc research activity at the University of Cambridge (UK), in a joint-project with the Fraunhofer Institute of Freiburg and the University of Karlsruhe (Germany).