

**Report on the short term visit to Dr. Stefan Heun at TASC-CNR-INFN Laboratory (Sept. 2006)**

During the month of September 2006 I had the opportunity to visit Dr. Heun at TASC-CNR-INFN Laboratory for a period of ten days, thanks to CNR's short term mobility program which funded a significant portion of my travel costs.

The objective of this visit was to perform experimental research in the framework of an international collaboration at Elettra, Italy's third generation synchrotron. More specifically, we grew Ge nanostructures on Si(111) substrates *in situ* at the Nanospectroscopy beamline, and then investigated alloying processes by X-Ray Photoemission Electron Microscopy (XPEEM) and growth instabilities by Low Energy Electron Microscopy (LEEM).

Several students and collaborators participated in this project, including F. Ratto (PhD student in my group), O. Moutanabbir (post-doctoral fellow from Keio University, Japan), A. Bernardi (PhD student from ICMAB, Spain), Prof. M. De Crescenzi (Univ. of Rome II) and S. Kharrazi and Prof. S.K. Kulkarni from Pune University (India). We were supported by the beamline's staff, Dr.s Andrea Locatelli, Lucia Aballe and Onur Menten.

The experiments were extremely successful. During the scheduled time we collected a wealth of experimental data. We were also able to begin preliminary data analysis, which extends our previous work and is giving us new insight into the complex behavior of this system.

After this period we have begun to carry out more systematic data analysis. This will allow us to draft several manuscripts for publication. At the moment it is perhaps premature to estimate how many scientific articles will be the subject of these studies since the analysis is not complete yet. However it is likely that at least three publications will ensue. In this sense it would be useful to schedule a second visit during the next few months to discuss and finalize the data analysis and manuscripts.

In summary I am most grateful for the support offered by CNR and I hope to be able to use it again in the near future.

Sincerely,

Federico Rosei