

JUSTIPEN travel report

Simone Baroni - from Sep 25, 2009 to Oct 10, 2009

During my two-week stay in Japan I mainly worked at RIKEN, with a one-day visit to Tsukuba University. The visit was very satisfactory, we could start new common projects and I had fruitful discussions with many colleagues.

RIKEN

I had helpful discussions with Dr. P. Avogadro, Dr. C. Barbieri, Prof. E. Ideguchi, Dr. A. Ikeda, Dr. N. Itagaki, Prof. K. Matsuyanagi, Dr. T. Nakatsukasa, Prof. M. Oi, Dr. K. Yoshida.

I started a new exciting project with Dr. Paolo Avogadro and Dr. Takashi Nakatsukasa. Together we will aim at a better description of nuclear superfluidity by assessing the importance of the so-called “induced interaction”. Realistic low-momentum interactions at all orders will be used consistently for the first time in the pairing channel in a HFB framework. Induced interaction arises from the exchange of nuclear excitations that will be computed in a FAM-QRPA calculation on top of an all-symmetry-breaking mean field. We defined many details of the project and already started to work on it.

In RIKEN I also had a fruitful discussion about high-spin physics with Prof. Makito Oi (from Senshu University) and Prof. E. Ideguchi. We talked about new challenges in the field, both on the experimental and on the theoretical point of view. We agreed on starting a new project together and already discussed some detail.

On Oct 9 I gave a seminar on “Odd-even mass staggering and nuclear superfluidity”. In particular, we discussed on P-wave superfluidity in finite nuclei and on the suppression of isoscalar pairing.

TSUKUBA UNIVERSITY (Oct 7, 2009)

By invitation of Prof. Yabana Kazuhiro I presented a seminar on “Nuclear superfluid properties with realistic potentials”.

I could also discuss with him on the mean field contribution to the odd-even mass staggering and also the applications of the FAM (Finite Amplitude Method) QRPA that he proposed in 2007 in a paper with Dr. T. Nakatsukasa and Dr. T. Inakura.

Dr. Tsunenori Inakura also joined our discussion.