Report on the JUSTIPEN sponsored visit of Dr. Mihai Horoi in Japan, May 8 to May 22, 2010

During the first week of May 10 to May 14 I visited Prof. T. Kishimoto's group at the Research Center for Nuclear Physics (RCNP), Osaka University. During my visit at RCNP I had multiple discussions on double beta decay with Profs. T. Kishimoto and H. Ejiri, and Dr. A. Hosaka. On May 12 2010, I presented the talk entitled "Shell Model Predictions of Double Beta Decay Half-Lifes" at the RCNP/Osaka University. After my talk, the host arranged for an experimental talk on double beta decay of 48Ca followed by afternoon discussions. During my visit at RCNP Osaka Dr. K. Takahisa offered me a tour of the RCNP Facility. During the tour we discussed several subjects of mutual interest, and we established a potential collaboration regarding the charge-exchange reactions of the A=58 system.

I arrived at RIKEN on Friday, May 14 and I was hosted there in the JUSTIPEN office for the rest of my stay. During that period I have extensive discussions on different subjects in nuclear structure with, Dr. T. Nakatsukasa, Dr. K. Matsuyanagi, Dr. S. Fujii (the JUSTIPEN host), Dr. C. Barbieri, and Dr. J. Lee. In particular, I helped Dr. J. Lee with the installation and running the NuShellX code on one of the RIKEN computer. In addition, we discussed several approaches to identify proton-neutron pairing correlations in medium-heavy nuclei. On May 20, 2010 I gave a talk at RIKEN entitled "Novel Computational Aspects of the Shell Model Nuclear Level Densities and Reaction Rates" followed by discussion with the theory group.

On Tuesday, May 18, I visited Prof. T. Otsuka and his group at Tokyo University. There, I presented a talk entitled "New Approaches for Shell Model Level Densities and Reaction Rates". After the talk I have few hours of discussions with Prof. Otsuka and Drs. Y. Utsuno and Shimizu. In particular, we discussed a potential collaboration that would test the new Shell Model Monte Carlo truncation method developed by Prof. Otsuka's group.

I would also mention that I gave copies of my talks to Prof. Kishimoto, Prof. Otsuka and Dr. Fujii.