

I was in Japan with support from the JUSTIPEN from January 20th to February 5th. While there I spent my time at the RIKEN headquarters in Wako-Shi, with the exception of two trips on each Monday to the University of Tokyo.

At both RIKEN and the University of Tokyo I gave a seminar titled *Beyond BCS Pairing Applied to Symmetry Energy*. In which I discussed the possible role of isovector pairing causing fluctuations in the symmetry energy dependence, as well as two new theoretical models to approximate pairing. The two models, a shell model calculation with a truncation of which configurations to include based on BCS wave function amplitudes and the hybrid approach to couple RPA or SCRPA calculations to small shell model calculations, are both prepublication and it was very helpful to see interest in them.

I discussed various topics with Prof. Otsuka and K. Nomura. Their fermionic to bosonic mapping seems like it could be very useful as a means of extracting some observable properties from potential energy calculations which I have already calculated. I was able to discuss this briefly with Nomura. I hope to continue correspondence and possible collaboration on this topic in the future.

For the majority of my stay I met and discussed many issues with Prof. Dang and N. Hung. Hung produced calculations of the ground state energy for a variety of single particle energy levels and pairing strengths of both Lipkin-Nagomi and SCQRPA with LN renormalization; which I will be able to compare results with in the future. I discussed with Prof. Dang the validity of the hybrid formalism as the shell model space is increased.

With assistance from Hung, I was able to make corrections to my Hybrid code and allow for use of not only use of RPA calculations but renormalized RPA and self consistent RPA as well. This was the principle motivation for my JUSTIPEN visit, and it was successful.

I would like to sincerely thank Prof. Dang and Hung for all of the help and hospitality during my stay. I would also like to thank Prof. Itagaki, Prof. Otsuka and Prof. Shimizu for help in coordinating seminars, discussions, etc. and their hospitality. The funds were provided through a JUSTIPEN travel grant. I very much appreciate this opportunity and hope that it leads to further collaboration with researchers in Japan.