

JUSTIPEN travel report

(C.A. Bertulani – Japan visit 10/18/2006 to 11/19/2006)

Sendai (Tohoku University): visit 10/18/2006 – 10/25/2006.

During my visit to Sendai I have had several collaboration discussions with Profs. Noboru Takigawa and Kouichi Hagino and their students and postdocs. The main subject of our discussions were the screening effect of the electrons in the stellar environment. This screening is responsible for an increase of the nuclear reactions involving charged particles in stars. This effect is also manifest in reducing the beta-decay probabilities to final states already occupied by electrons in the medium. Other topics of our common interest are the effects of bound atomic electrons in d-d fusion reactions in deuterated metals and charge-exchange reactions with heavy ions. On 11/24 I presented a seminar for the nuclear theory group in Sendai. During my stay in Sendai I have also attended private seminars by students from Prof. Takigawa.

Aizu-Wakamatsu: visit 10/20/2006 – 10/21/2006.

While in Sendai we (Profs. Takigawa, Hagino and I) made a trip to Aizu to participate in a Mini Workshop "Contemporary developments of nuclear mean-field models". This workshop include seminars by Noboru Takigawa (Tohoku Univ.), Carlos Bertulani (Univ. of Arizona), Susumu Shimoura (CNS), Toshio Suzuki (Nihon Univ.), WenHui Long (Univ. of Aizu / Peking Univ.), Satoshi Yoshida (Hosei Univ.), Kazuhiro Yabana (Univ. of Tsukuba), Kouichi Hagino (Tohoku Univ.), Atsuko Odahara (Osaka Univ.), Masayuki Yamagami (RIKEN), Masayuki Matsuo (Niigata Univ.) and Hiroyuki Sagawa (Univ. of Aizu).

RIKEN: visit 10/26/2006 – 11/19/2006.

On my second day (11/26) of my visit to RIKEN I was invited by Prof. Takashi Nakamura of the Tokyo Institute of Technology for a visit and a seminar. During my short visit we discussed about the Coulomb breakup of ^{11}Li . Later, on 11/15/2006 I was invited by Prof. Kazuhiro Yabana for a seminar and a visit to Tsukuba University where we also discussed Time Dependent Hartree-Fock calculations for reactions involving halo nuclei. During my stay at RIKEN, I presented a seminar on 11/01 and participated in an afternoon JUSTIPEN meeting on 11/16 organized by Prof. Takaharu Otsuka, with participation of several theorists from RIKEN and other universities, including Prof. Tohru Motobayashi. On Nov. 17 and 18 I took part on a RIBF workshop "Nuclear structure studied via reaction cross sections", organized by Dr. Akihisa Kohama, with participations of Drs. A. Ozawa, Y. Suzuki, M. Takechi, Y. Utsuno, C. Bertulani, M. Yahiro, H. Takeda, T. Suda, K. Oyamatsu, T. Yamaguchi, M. Fukuda, K. Iida, T. Yamaguchi, K. Tanaka, W. Horiuchi, N. Otsuka, K. Ogata, M. Takashina, M. Kawano and T. Furumoto. I have also had discussions with Dr. Ken-Ichiro Yoneda on momentum distributions in knockout reactions.

My visit to Japan was organized by Dr. Naoyuke Itagaki, who took care of my working conditions, lodging, documents and organization of meetings. Prof. Takaharu Otsuka always took part on the decisions about meetings and visits I was involved in. Finally, Ms. Tomoko Iwanami and Dr. Ken-Ichiro Yoneda took care of many details of my visit.

My visit to Japan with JUSTIPEN was scientifically fruitful and pleasant.

Recommendations for JUSTIPEN

During my visit to Japan with the JUSTIPEN program I have profited from many fruitful discussions with my Japanese colleagues in form of seminars at several institutions, internal collaboration trips, discussion meetings, etc. I think that this feeling was mutual.

How I see JUSTIPEN. It looks like a humble, small, version of the very successful RIKEN-RHIC partnership in nuclear theory which has created numerous new faculty positions in the US during the last decade. These positions (in QCD-related nuclear physics) will keep the very promising many-body QCD problem under intense investigation for decades to come. Unfortunately such an investment in low-energy nuclear theory studies in the US is impossible due to absence of a new dedicated nuclear physics, RIA-like, facility. And also due to the absence of the leadership of the sort that Prof. T.D. Lee has had for the RIKEN-RHIC program. Fortunately for our community, such a facility exists now in Japan: the fancy, brand new, Nishina center and the new RIBF facility.

IF (and this IF is important) this new facility delivers what our Japanese colleagues have promised, it will become the testing center for existing theoretical models and eventually will bring new surprising results, giving new inputs for theory, in the next decade or so. In this sense, JUSTIPEN is important for the whole low energy nuclear physics community, not only for Japan.

What JUSTIPEN could become. Evidently, JUSTIPEN does not have the possibility to give partial support to faculty positions in Japan. However, it could have a close resemblance to the RIKEN-RHIC program if postdoc and PhD positions in the US and Japan were tied to a minimum permanence of 6 months at the RIKEN facility. Visits of experienced senior US faculty to RIKEN should be continuously encouraged in the present form of organization of JUSTIPEN. But we know that the most intensive, hard, and promising, work is practiced by young researchers. Senior theorists in the US will certainly profit from sending their postdocs (and PhD students) here. These long term visits would also need to have a close relation to the experimental efforts at RIKEN.

I do not have a single criticism on the project support to the visitors. On the Japanese side the program is jointly organized by the University of Tokyo and RIKEN, being led by Prof. Takaharu Otsuka and Dr. Naoyuke Itagaki. I was treated very well, simply because our Japanese hosts are very polite people. Lodging, office space, and plenty of work, are very well organized by Prof. Otsuka and Dr. Itagaki. They also advertise widely the presence of JUSTIPEN visitors to the whole country. Perhaps only one advice: make contact with your potential Japanese collaborators long before your trip in order to arrange possible visits to their institutions. Very often few weeks in advance are necessary to prepare the paperwork for visiting additional places. The organization of JUSTIPEN in RIKEN is simply perfect.

My only concern is that the project might not foment young researchers and, with them, help to generate meetings on the physics of unstable nuclei with 700 participants, as once I've seen in Stony Brook in 2001 (a "quark-matter" meeting).

C.A. Bertulani