

国立天文台滞在型研究員の方には期間中の成果について報告をしていただくことになっております。このフォームに記していただき期間終了 2 週間以内に国立天文台研究支援係にご提出ください。なおこの報告書は研究成果の論文掲載前でも研究交流委員会の web 上に公開いたしますので、研究内容の詳細について記入していただく必要はありません。この研究の成果を学術誌等で発表するときはその旨を謝辞に記載してください。

2011 年 11 月 23 日

所属 Lawrence Livermore National Laboratory, University of California,

氏名 Richard N. Boyd

受け入れ 氏名： Prof. T. Kajino

滞在期間 2011 年 11 月 4 日 ～ 2011 年 11 月 23 日

I. 滞在型研究員として国立天文台滞在中に行った活動について簡単にお書きください。
(Your activity during this stay) :

The activities during this trip involved mainly everyday discussions with Prof. Toshitaka Kajino, Dr. Wako Aoki, Prof. Takashi Onaka and their colleagues at NAOJ and University of Tokyo, and also attendance at a conference and workshop, with presentation of the results of two projects which we had aimed to develop in this trip, as well as development of both projects. The specific activities are as follows:

- a. Beginning of a manuscript on the next phase of our work on Amino Acid Chirality. This will involve comparison of the two models, ours and another one, as to their effectiveness in producing Amino Acid Chirality in the Interstellar Medium.
- b. Discussions to develop the path forward for the truncated r-process work. Although this is in the preliminary stage, we were able to formulate new directions. These will be discussed with other collaborators (both American and Japanese), and new work is expected to begin very soon.
- c. Presentation of our (myself, together with Prof. Toshitaka Kajino and Prof. Takashi Onaka) work on the Chirality of the Amino Acids via a colloquium at the Department of Astronomy, University of Tokyo. Our work in this area has produced a new paradigm, and it is therefore important to present it in a variety of forums.
- d. Presentation of our (myself, together with Prof. Michael Famiano, Prof. Bradley Meyer, Dr. Yuko Motizuki, Prof. Toshitaka Kajino, and Dr. Ian Roederer) work on the truncated r-process of nucleosynthesis at the Origins of Matter and Evolution of Galaxies (OMEG-11) conference.

- e. Subsequent presentation of the work on the Chirality of the Amino Acids at the Origins of Matter and Evolution of Galaxies Institute (OMEG Institute-5) held at Mitaka. Both presentations were extremely well received. These presentations resulted in a new invitation to present the work in a university colloquium in the United States. I have developed a book on this subject, and was told following the second presentation that it had been selected as part of the readings for a university course.
- f. The proceedings from OMEG-11 will be refereed and published. The writeup for our truncated r-process presentation is in progress, and will be submitted before the end of December.

II. 今回滞在型研究員として得られた成果について簡単にお書きください。(Your research products from this stay) :

1. As noted above, a start was made on the next phase of the Amino Acid Chirality work, and we expect to develop this manuscript in the weeks ahead.
2. It is difficult to assess the level of goodwill that results from presentations, but in my more than 200 presentations at seminars, colloquia, and conference talks, I have never had even close to the positive level of responses that I got from my presentations on our Amino Acid Chirality work.
3. The truncated r-process work was submitted prior to my trip to Japan, but it was learned during this trip that the paper had been accepted in Astrophysical Journal Letters.
4. The next phase of the truncated r-process work is just being defined during my trip, so is not yet even close to being sufficiently well developed that a manuscript on the work can be started. However, even defining the next phase of the work was a major step forward

III. この制度についてなにか御意見がありましたら、なんでも記入ください。

(Any opinions on this exchange program):

I have had several productive and pleasant scientific exchange visits to NAOJ in the past, and the current visit was no exception. Our Amino Acid Chirality work promises to be a new paradigm in understanding the origin of life on Earth, so this work is expected to have a huge impact on worldwide science. Our exchanges over the past years have produced a large body of published work, and I expect this to continue from the present visit, and possible future visits.