

The Global COE Program B1102

“The Next Generation of Physics, Spun from Universality and Emergence”

Bilateral International Exchange Program (BIEP, invite) report

Send report to: Your responsible Professor in Kyoto University

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(Year/Month/Day) 2011/08/01

**Invited Student**

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**Responsible Researcher in Kyoto University**

Name	Kouji Ohta
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**Research Project**

Title	Tracing Star Formation from the Ancestors of Today's Galaxies using FMOS
Duration	May 12, 2011-Aug 2 2011 (82 days)

Please summarize your activities and results during your stay in Kyoto University.

Also please describe how your stay has been beneficial to the graduate students in the host institute. You can add a sheet, if you need more space.

You can also write any comments and requests to the GCOE program.

I have spent just under 3 months in Kyoto working with Professor Ohta and one of his graduate students (K. Yabe). It has been exceptionally fun and I have learned many new techniques in astrophysics that will further my knowledge in the field.

Our aim was to constrain flux measurements in the UV-band obtained with the GALEX satellite for galaxies in the high redshift FMOS (Fibre Multi Object Spectrograph) SXDS field sample that Professor Ohta and his graduate student have been working with. I learned to use software such as IRAF, DS9, SExtractor and TFIT which I had not used before. TFIT lets me use high resolution measurements of these galaxies taken by Subaru's SCam (B-band) to constrain flux measurements of the same sample taken using GALEX's NUV band. These constraints will allow more accurate SED (spectral energy distribution) fitting which will help to draw conclusions about star formation and the amount of extinction in these ancient galaxies. This will have implications for how galaxies have evolved since the Big Bang.

Since TFIT is complicated software, it was a lengthy process to adapt the code to work with our data set and it required much trial and error. After checking fluxes with another software for isolated galaxies, we can now obtain NUV fluxes almost reliably. With the results from TFIT, I extracted NUV and optical B-band images as well as 'collage' images obtained from TFIT so that objects can be compared and analysed visually. The next step, to conduct the SED fitting with the TFIT constrained fluxes, will be done by K. Yabe in the near future. I have left a detailed report of the procedures that I adopted and the methods which I used for K. Ohta and K. Yabe so that further studies may be conducted.

As well as conducting scientific research, I regularly interacted with the other graduate students in English – through work meetings, lunch times, English seminars and social events. Communicating well in English will allow graduate students at Kyoto University to convey their work to a bigger audience and collaborate with more people around the world. With this in mind, I helped other students with vocabulary and the pronunciation of difficult sounds in English.

I have had a remarkably fun time experiencing life in Kyoto and am indebted to Kyoto University and the BIEP-GCOE committee for giving me the opportunity to come to Japan. Especially Professor Ohta, K. Yabe and the other staff and graduate students in the astrophysics department for being so hospitable during my stay. I hope to collaborate further with people I have met in future scientific projects.

Many thanks, Caroline Scott