

Activity Report of the NAOJ Visiting Scholar Program

Host Project/Division: Solar and Plasma Astrophysics Division Name of Host Scientist: Shin Toriumi

Name of Visiting Scholar: Mark C.M. Cheung

Title: Visiting Associate Professor

(Choose the appropriate one)

Period: from 15/10/12 to 15/11/06 and 16/03/01 to 16/03/28

I. Report from the visiting scholar

[i] Achievement during the period of stay (in comparison with the initial plan)

I consider my two month-long visits to NAOJ to have been very productive in many respects. I had many stimulating discussions with colleagues and students at NAOJ and at other research groups in Japan. Prof. Toriumi and I organized and chaired two 2-day scientific workshops. In total I delivered about 9 hours of lectures in these workshops. I also gave contributed talks at two scientific conferences and seminars to several research groups around Japan. New scientific collaborations started as a result of my interaction with local researchers. In addition, my tenure allowed me the time to work on a Space Science Review paper, which is now in press.

(Collaborative Research)

New scientific projects that started during my visits

- Study of Solar UV Bursts with S. Toriumi (NAOJ) and Y. Katsukawa (NAOJ)
- Study of the Thermal Structure of Flares Plasma with S. Takasao (Kyoto U)

(Education)

Workshops organized and co-chaired (together with S. Toriumi, NAOJ)

- Workshop on Physics and Diagnostics of Emerging Flux Regions, 15th – 16th October 2016, NAOJ, Mitaka, Tokyo. 4.5 hours of lectures delivered.
- Differential Emission Measure (DEM) Data Analysis Workshop, 28th – 29th March 2016. 4.5 hours of lectures delivered and 5 hours of lab work supervised.

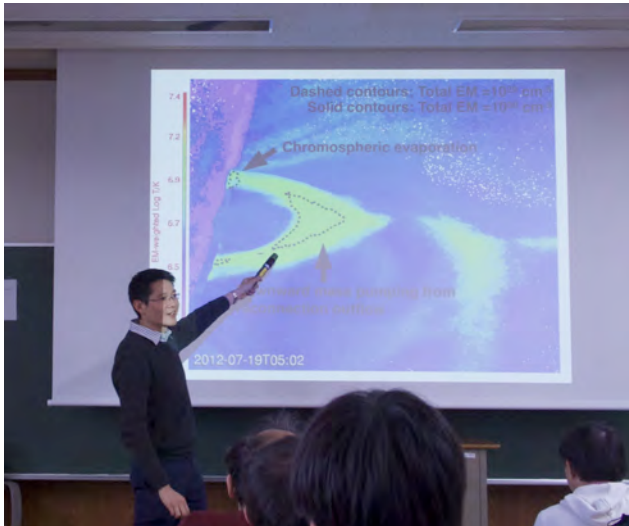
(Others)

Seminars about Thermal Diagnostics with the Atmospheric Imaging Assembly (AIA) instrument onboard NASA's Solar Dynamics Observatory (SDO)

- University of Tokyo,
- Nagoya University,
- Kyoto University, and
- ISAS/JAXA.

Some photos

Left: Prof. Cheung giving a contributed talk at the ASJ 2016 Spring Meeting in Tokyo. Right: Attendees of the DEM Workshop following lab exercises and learning how to use SDO/AIA data to measure the temperature of the solar corona.



[ii] Any comments on this program

Acknowledgements:

I am extremely grateful to the staff at NAOJ for their cordial hospitality. In particular I am very grateful to my primary host Prof. S. Toriumi. He is extremely organized and helpful, and a fine colleague and friend.

[iii] List of publications and presentations by the visiting scholar in collaboration with NAOJ staff or graduate students
<p><u>Publications:</u></p> <ul style="list-style-type: none"> Invited paper titled “The Life Cycle of Active Region Magnetic Fields”, accepted for publication: Cheung, van Driel-Gezsteyli, Martinez-Pillet & Thompson, Space Science Reviews, in press. <p><u>Presentations:</u></p> <ul style="list-style-type: none"> “Thermal Evolution of Reconnection Outflows in Solar Eruptions”, contributed talk at the 2016 Astronomical Society of Japan (ASJ) spring meeting, at 14th – 17th March 2016, Tokyo Metropolitan University. “Evolving Models of Stellar Photospheric and Coronal Magnetic Fields”, contributed talk at the Workshop on “Superflares on Solar-type Stars and Solar Flares, and Their Impacts on Exoplanets and the Earth”, 1st – 4th March 2016, Kyoto University. Seminars about Thermal Diagnostics with the Atmospheric Imaging Assembly (AIA) instrument onboard NASA’s Solar Dynamics Observatory (SDO)

II. 以下の項目について、受入教員が記入してください。

Report from the host scientist

[iv] 本制度に対する意見、要望など
Any comments on this program
<p>以上に記してある通り、国立天文台で開いたワークショップ 2 件（鳥海との共催）、学会発表 2 件、台外セミナー 4 件と多くの講義・発表を行っていただいた上、複数の共同研究を開始、論文を 1 本仕上げ受理させるなど、合計 2 ヶ月弱という短い期間にもかかわらず非常に生産的な滞在となった。このような機会を与えていただいた本客員制度に深く謝意を表したい。今回の滞在が国立天文台内外の研究者、特に若手や学生に与えた影響は少なくないと考えており、今後さらなる成果が論文などの形で現れるものと期待している。今回は先方の都合上給与の支払いが行われなかったが、謝金等の手段で少しでも埋め合わせができれば良かった。</p>