

Activity Report of the NAOJ Visiting Scholar Program

Host Project/Division: Solar Science Observatory Name of Host Scientist: Yoichiro Hanaoka

Name of Visiting Scholar: Kuzanyan, Kirill

Title: Visiting Professor

(Choose the appropriate one)

Period: from 18/09/04 to 18/12/15

I. Report from the visiting scholar

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

(Collaborative Research) During his stay in NAOJ, Dr Kuzanyan worked for development the method of building mosaic magnetic vector field maps for achievement of the highest spatial wave-number ratios with his colleagues in Japan. With the outcome of this study, they further investigate the turbulent cascades of the magnetic energy and helicity in the solar plasma, and it will help understanding of the solar dynamo processes more deeply.

NAOJ's Solar Flare Telescope IRmag team have recently provided the full-disk vector magnetic field data that can be used as a new independent source of information for computation of helicities at all ranges of scales. These new results also provided high accuracy data on filaments; with Prof. Kuzanyan's experience in systematic study of tilts and other filament properties, we hope to find more regularities with the solar cycle.

His stay was shortened by 1.5 months in comparison with the initial plan. Nevertheless, the planned researches were satisfactorily carried out. The reason of the shortening is that he planned to attend a workshop, "Solar Helicities in Theory and Observations: Implications for Space Weather and Dynamo Theory". This workshop is held during the planned second period of his stay. The purpose to attend this workshop is to publicize the outcome of his stay at NAOJ and to discuss the direction of future research. Therefore, his participation of the workshop will make the outcome of his stay more significant.

(Education) n/a

(Others)

Presentation at Hinode-12 Science meeting during the Visiting Scholar Programme (see below iii)

Presentations at local colloquium and seminars in NAOJ/Solar Sciences division; JAXA/ISAS, and University of Tokyo/Institute of Industrial Sciences (oral talks)

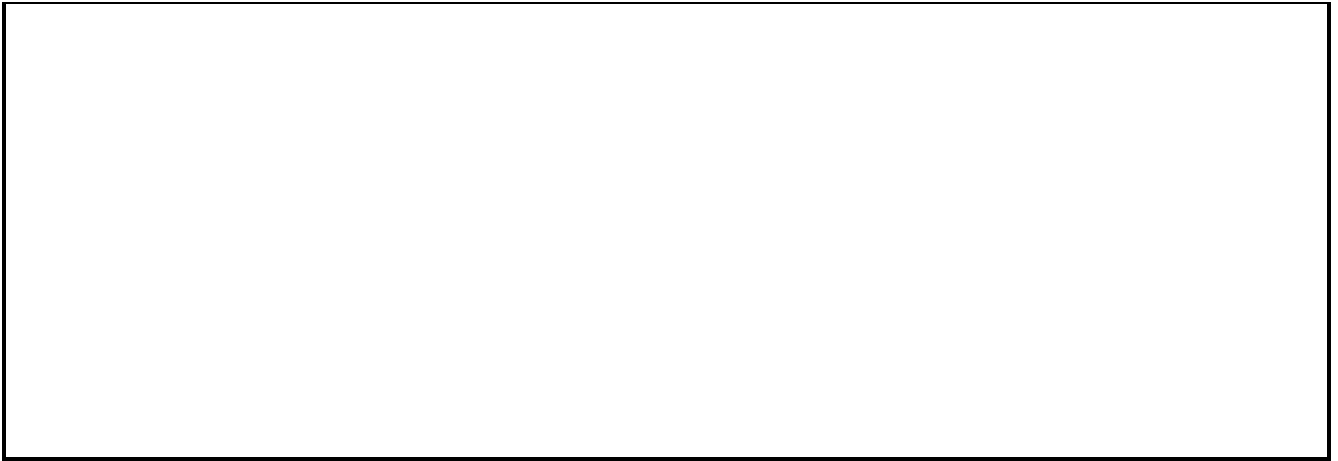
[ii] Any comments on this program

<p>[iii] List of publications and presentations by the visiting scholar in collaboration with NAOJ staff or graduate students</p>
<p>Presentation at Hinode-12 Science meeting during the Visiting Scholar Programme:</p> <p>Oral: K. Kuzanyan; K. Otsuji; T. Sakurai, N. Yokoi "Mosaic observations of vector magnetic field and spatial spectra of the field and magnetic helicity in the sun" // HINODE-12 Science meeting: The Many Suns, Granada Spain 10-13 September 2018 http://spg.iaa.es/hinode12/ (p.11, oral) ; http://spg.iaa.es/hinode12/Hinode12_Abstract_Booklet_20180906.pdf</p> <p>Poster: A. S. Kutsenko, V. I. Abramenko, K. M. Kuzanyan, Haiqing Xu, and Hongqi Zhang "Intermittency spectra of current helicity in solar active regions" // HINODE-12 Science meeting: THE MANY SUNS, Granada Spain 10-13 September 2018 http://spg.iaa.es/hinode12/ (p.26, poster) ; http://spg.iaa.es/hinode12/Hinode12_Abstract_Booklet_20180906.pdf</p> <p>Oral Presentations at local colloquia and seminars in NAOJ/Solar Sciences division; JAXA/ISAS, and University of Tokyo/Institute of Industrial Sciences. The latter colloquium talk was entitled K.M. Kuzanyan “Magnetic helicity and tilt of bipolar structures in solar active regions: the observable statistical data, development of theoretical models, and applications” Seminar-Colloquium of Institute of Industrial Sciences, University of Tokyo, Japan, 5 December 2018</p>

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

<p>[iv] 本制度に対する意見、要望など</p> <p>Any comments on this program</p>
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* If it is necessary, two extra pages can be used. The page limit of the entire document is five pages.

* This report will be posted on the website of the Research Coordination Committee, NAOJ except [v].

【Request】

For three years following the completion of the research, we will send you a request to submit a list of papers and other results that have been produced by this research collaboration. We appreciate your cooperation.