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We detect a new population of chromospheric jets in a polar coronal hole observed by Hinode/SOT. The propagating speed of the jets ranges in 30 - 490 km/s whose duration time is 3 - 52 s. The recurrent rate is approximately 3/min for a give segment of 1 arc-second horizontal interval. These jets are seemed to be more transient and faster than type II spicules at chromosphere, while the properties are compatible with the network jets seen in emission lines of transition region. We will discuss the implication of these jets for a coronal heating.

**[구 SS-06] Development of a diagnostic coronagraph on the ISS: progress report**

Yeon-Han Kim<sup>1,2</sup>, Seonghwan Choi<sup>1</sup>, Su-Chan Bong<sup>1,2</sup>, Kyungsuk Cho<sup>1,2</sup>, Young-Deuk Park<sup>1</sup>, Jeffrey Newmark<sup>3</sup>, Nat. Gopalswamy<sup>3</sup>, Seiji Yashiro<sup>3</sup>, Nelson Reginald<sup>3</sup>

<sup>1</sup>*Korea Astronomy and Space Science Institute, Korea*

<sup>2</sup>*University of Science and Technology, Korea*

<sup>3</sup>*NASA Goddard Space Flight Center, USA*

The Korea Astronomy and Space Science Institute (KASI) has been developing a coronagraph in collaboration with the National Aeronautics and Space Administration (NASA), to install it on the International Space Station (ISS). The coronagraph will utilize spectral information to simultaneously measure electron density, temperature, and velocity. For this, we develop the coronagraph as a two-step process. First, we will perform a stratospheric balloon-borne experiment, so called BITSE, in 2019 with a new type of coronagraph. Second, the coronagraph will be installed and operate on the ISS (CODEX) in 2021 to address a number of questions (e.g., source and acceleration of solar wind, and coronal heating) that are both fundamental and practically important in the physics of the solar corona and of the heliosphere. In this presentation, we will introduce recent progresses.

**[구 SS-07] Application of Deep Learning to Solar Data: 1. Overview**

Yong-Jae Moon, Eunsu Park, Taeyoung Kim, Harim Lee, Gyungin Shin, Kimoon Kim, Seulki Shin, and Kangwoo Yi

<sup>1</sup>*School of Space Research, Kyung Hee University,*

<sup>2</sup>*Department of Research and Development, InSpace Co.*

Multi-wavelength observations become very popular in astronomy. Even though there are some correlations among different sensor images, it is not easy to translate from one to the other one. In this study, we apply a deep learning method for image-to-image translation, based on conditional generative adversarial networks (cGANs), to solar images. To examine the validity of the method for scientific data, we consider several different types of pairs: (1) Generation of SDO/EUV images from SDO/HMI magnetograms, (2) Generation of backside magnetograms from STEREO/EUVI images, (3) Generation of EUV & X-ray images from Carrington sunspot drawing, and (4) Generation of solar magnetograms from Ca II images. It is very impressive that AI-generated ones are quite consistent with actual ones. In addition, we apply the convolution neural network to the forecast of solar flares and find that our method is better than the conventional method. Our study also shows that the forecast of solar proton flux profiles using Long and Short Term Memory method is better than the autoregressive method. We will discuss several applications of these methodologies for scientific research.

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**[구 SS-08] Solar farside magnetograms from deep learning analysis of STEREO/EUVI data**

Taeyoung Kim<sup>1,5,7</sup>, Eunsu Park<sup>1,7</sup>, Harim Lee<sup>1,7</sup>, Yong-Jae Moon<sup>1,2\*</sup>, Sung-Ho Bae<sup>3</sup>, Daye Lim<sup>1</sup>, Soojeong Jang<sup>4</sup>, Lokwon Kim<sup>3</sup>, Il-Hyun Cho<sup>2</sup>, Myungjin Choi<sup>5</sup> and Kyung-Suk Cho<sup>4,6</sup>

<sup>1</sup>*School of Space Research, Kyung Hee University, Yongin, South Korea.* <sup>2</sup>*Department of Astronomy and Space Science, College of Applied Science, Kyung Hee University, Yongin, South Korea.*

<sup>3</sup>*Department of Computer Science and Engineering, College of Electronics and Information, Kyung Hee University, Yongin, South Korea.* <sup>4</sup>*Space Science Division, Korea Astronomy and Space Science Institute, Daejeon, South Korea.*

<sup>5</sup>*InSpace Co., Ltd., Daejeon, South Korea.*

<sup>6</sup>*Department of Astronomy and Space Science, University of Science and Technology, Daejeon, South Korea.* <sup>7</sup>*These authors contributed equally: Taeyoung Kim, Eunsu Park, Harim Lee.*

Solar magnetograms are important for studying solar activity and predicting space weather disturbances<sup>1</sup>. Farside magnetograms can be constructed from local helioseismology without any farside data<sup>2-4</sup>, but their quality is lower than that