

Five Years of SEEDS: Direct Imaging of Exoplanets and Disks with Subaru

TAMURA, Motohide^{1*} ; SEEDS, Team¹

¹The University of Tokyo, Graduate School of Science

SEEDS (Strategic Explorations of Exoplanets and Disks with Subaru) is the first Subaru Strategic Program, whose aim is to conduct a direct imaging survey for giant planets as well as protoplanetary/debris disks at a few to a few tens of AU region around 500 nearby solar-type or more massive young stars devoting 120 Subaru nights for 5 years. The targets are composed of five categories spanning the ages of ~1 Myr to ~1 Gyr. Some RV-planet targets with older ages are also observed. The survey employs the new high-contrast instrument HiCIAO, a successor of the previous NIR coronagraph camera CIAO for the Subaru Telescope. We describe the outline of this survey and present its main results. The results includes discovery and characterization of 4 planets via direct imaging. detection of more than 2 brown dwarfs, discovery of companions around more than 2 RV-planetary systems. We also report the discovery of unprecedentedly detailed structures of about 20 protoplanetary disks and some debris disks. The detected structures such as wide gaps and spirals arms of a Solar-system scale could be signpost of planet.

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