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Direct imaging of exoplanets and their formation sites with Subaru

Since the first detection around normal stars in 1995, more than 500 exoplanets have been detected. Furthermore 1000 or more candidates have been recently reported by the Kepler mission. Direct imaging can explore the wide-orbits planets around young stars that are difficult to observe with other methods. Due to the huge contrast between the central star and planet, direct imaging of exoplanets is technically challenging but is finally becoming successful on 8-m class telescopes. Strategic Explorations of Exoplanets and Disks with Subaru (SEEDS) 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. We present its early results including detection of planet candidates and discovery of unprecedentedly details of several protoplanetary disks.

References

- (1) Hashimoto, J., Tamura, M., Muto, T. et al. 2011, ApJ, 729, L17.
- (2) Mayama, S., Tamura, M., Hanawa, T. et al. 2010, Science, 327, 306.
- (3) Thalmann, C. Carson, J., Janson, M. et al. 2009, ApJ, 707, L123.

CV

1988 – 1990	Post-doctoral Fellow, NOAO
1990 – 1992	Post-doctoral Fellow, JPL
1992 – 1998	Research Associate, National Astronomical Observatory of Japan (NAOJ)
1998 – Present	Associate Professor, NAOJ
2004 – Present	Chief of Extrasolar Planet Detection Project Office of NAOJ

Research Interest and Experience

Exoplanets, brown dwarfs, star and planet formation, astronomical polarimetry, infrared instrumentation
P.I. of the SEEDS (Strategic Explorations of Exoplanets and Disks with Subaru) project
P.I. of CIAO (Coronagraphic Imager with Adaptive Optics) for the Subaru Telescope
P.I. of SIRIUS (Simultaneous-color InfraRed Imager for Unbiased Surveys) for the IRSF telescope
P.I. of HiCIAO (High Contrast Instrument for the next generation Adaptive Optics) for Subaru