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DIRECT IMAGING SEARCH FOR EXTRA-SOLAR PLANETS

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To date, more than 130 extra-solar planets have been discovered by indirect methods. We have made coronagraphic observations for the direct detection of extra-solar planets using the Subaru Telescope. It is known that, based on simple estimation, it is difficult to detect the reflection light of all known planets directly, due to the faintness and the small apparent separation from the parent star. However, recent theoretical studies predict that a planetary system with an inner giant planet and a long-lived circumstellar disk may have other giant planet(s) in the outer region (most probably 3 to 10 AU).

Moreover, if a planet is still in its contraction phase, it emits enough brightness in radiation to be detected by deep coronagraphic observations. ϵ Eri is the best target, because it is the closest planetary system to Earth and it is a young system with a long-lived circumstellar disk. We have searched for radiation from giant planets around ϵ Eri and Vega using the coronagraphic method. We will present the results of this search.