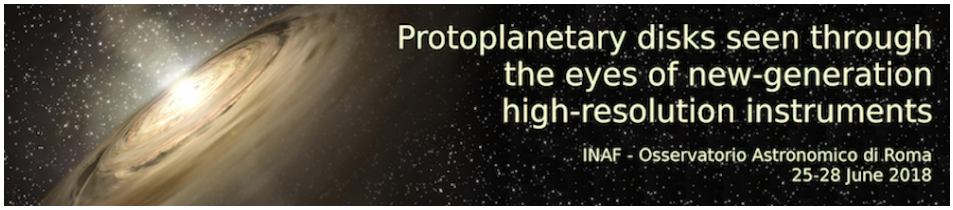

Contribution ID: **30** Type: **Talk**

Search and characterization of young planets with GAPS

Thursday 28 June 2018 10:00 (20 minutes)

The "GAPS"(Global Architecture of Planetary Systems) project gathers a large part of the Italian community working on exoplanets. In the past 5 years our radial velocity survey with HARPS-N at TNG was focused to the search and characterization of planetary systems around stars with different characteristics (M dwarf, stars with already known planets, metal-poor stars, members of open clusters, ⋯), producing important results as well as a robust and competitive community.
Thanks to the integration of GIARPS (GIANO-B & HARPS-N) at TNG in 2017, GAPS has the opportunity to explore new perspectives on the exoplanet search: the simultaneous visible and near infrared observations can help to discriminate the nature of the radial velocity variation when observing very active stars, which is a difficult achievement with previous techniques and instrumentation.
Taking advantage of the GIARPS capabilities, the Young Objects sub-program of the new GAPS2 survey focused its attention to the first stages of planetary systems formation.
Recent results suggest that we could expect a large fraction of hot Jupiters around very young stars with respect to the old ones (Donati et al. 2016, Yu et al. 2017), but the current statistic is far to be complete. Of course, the observation of this kind of objects allows us to study the ongoing planet formation and to compare the planet properties at different time scales, helping to investigate the role played by the migration mechanisms, the formation sites and the orbit evolution on their observed diversity.
During the first part of the program we gained the expertise to properly model the stellar activity (Gaussian processes) starting from a suitable observing strategy, which is a crucial issue when dealing with young stars.
Our target sample includes members in young associations (e.g., Taurus): some of them are known to host confirmed or candidate hot Jupiters.
In this talk I will present the main objectives of our program and the preliminary results.

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Session Classification: Formation of protoplanets (chair D. Fedele)