Once mixed in the galactic plane stellar population, young stars are virtually indiscernible from older ones. Nevertheless we discovered 4 lithium-rich field stars in the RosTyc sample. They are located within a few degrees from each other on the galactic sphere and near the Ceplex-CSassoepea complex. Their ages are in the range 10-30 Myr and they form a homogeneous group with a common origin. In order to discover some new comoving companions, we selected optical counterparts of ROSAT All-Sky Survey X-ray sources cross-identified with late-type stars around these 4 young stars thanks to higher-resolution spectroscopic observations of this sample allowed us to discover additional lithium-rich sources. From the analysis of their spectra, we found that 6 of our young star candidates have similar physical and kinematical properties as those of the 4 comoving T Tauri stars. Moreover they are all located inside or close to the CO Cepheus void. They have properties rather similar to the members of the TW Hydrae association, although they are slightly older and placed in the northern hemisphere. Young nearby stars in the field are of great importance to understand the recent local history of star formation, as well as to give new insight into the process of star formation outside standard star-forming regions and to study the evolution of circumstellar discs.

I) Stellar X-ray sources in the solar neighborhood

- Most stars detected by the ROSAT mission are younger than 1 Gyr (Motch et al. 1997).
- Guillot et al. (1999) cross-correlated the ROSAT All-Sky Survey (RASS) with the Tycho catalogues and selected stars in the largest (by coordinates) group of new lithium-rich sources, the so-called RosTyc sample.
- This stellar population can be used as a tracer of young local structures and displays a significant asymmetry in the all-sky RosTyc distribution with respect to its galactic location, likely due to the Gould Belt (Guillot et al. 2006). The RosTyc association of region 30-150 pc young (5-70 Myr) associations (see the reviews of Zuckerman & Song 2005 and Torres et al. 2008) e.g., the TW Hydrae association (TWA) around TW Hya (Gregorio-Hetem et al. 1992; Kastner et al. 1997).
- Some of them were already known as WTTS (orange circles).
- In Fig. 4, we show the spatial distribution of the original TTSs with a likely common origin. Some of them form a homogeneous group with a common origin (circles), each symbol is filled in orange, red or yellow if the star is inside or the closest to the region are labeled.

II) Search for new young comoving candidates

- We looked for optical counterparts of RASS X-ray sources cross-identified with late-type stars using multivariate analysis methods to disentangle the stellar population from the extragalactic component (galaxies and quasars) also emitting in X-ray (Pineau et al. 2011). Finally we selected 162 young star candidates that fulfilled our criteria (Klutsch et al. 2010). All stars from Tachihara et al. (2005) were also included in this sample to determine their kinematics and possible connection with our TTSs.
- We acquired intermediate- and high-resolution optical spectra for 142 of them, using spectrographs INT/IDS (La Palma), 2.2m/FOCES (CAHA) and T193/Sophie (OHP).
- For stars observed with IDS, with only one peak visible in the CCF, we applied the ROTFIT code (Klutsch et al. 2010) to estimate their spectral type and astrophysical parameters (Teff, logg, [Fe/H], vsini).
- We derived kinematics of all lithium-rich sources (Fig. 3), except for the 3 sources with a significant asymmetry (LiI) of 8 targets is higher than that of Pleiades cluster’s stars. We show their spectrum in Fig. 2.
- We derived kinematics of lithium-rich sources (Fig. 3), except for the 3 sources with a large radial velocity variation. Among them, 6 sources are good young comoving candidates, 5 of which are located in the CO Cepheus void and the last one is in front of the cloud L1251 (Fig. 4). For one of them, all its spectral and kinematical properties are similar to those of the 4 T Tauri stars. We discovered 4 lithium-rich stars (Fig. 3) and selected optical counterparts of ROSAT All-Sky Survey X-ray sources cross-identified with late-type stars around these 4 young stars thanks to higher-resolution spectroscopic observations of this sample allowed us to discover additional lithium-rich sources.
- In the same sky area, there is the naked TTS V368 Cep and its comoving companion (distance ~ 20 pc, age ~ 20-50 Myr), which are foreground stars. They are thus unrelated with this comoving group.

IV) Conclusions and perspectives

- We discovered many young stars towards a region devoid of interstellar matter. Some of them form a homogeneous group of comoving TTSs with a likely common origin (similar to TWA, but slightly older) ruling out the runaway hypothesis.
- Our preliminary results seem to confirm the existence of a link between the original comoving TTSs, some young star candidates and some Tachihara et al. (2005) WTTS because they have similar spectral and kinematical properties.
- These results of the star-formation scenario in low-mass cloud regions is raised.
- The Gaia mission with its unprecedented astrometric precision, will clearly shed light on this issue and on the origin of this group.

First young loose association in the northern hemisphere

References:
- Dobashi, et al. 2005, PAUJ, 57, 1
- Acknowledgments: This work was supported by Universidad Complutense de Madrid, Afghanistan (UAM-200050-S-04), and the Spanish Ministerio de Ciencia e Innovación (MICINN) under grants AYA2008-06005 and AYA2008-06432-C1-1. This work is supported by the Italian Ministeri dell’Istruzione, Università e Ricerca (MIUR), and the Region Abruzzo.