

STELLAR CLUSTERS as Probes of The Local Universe

Group of Stellar Systems

Instituto de Astrofísica de Andalucía
Consejo Superior de Investigaciones Científicas

<http://www.iaa.es/groups/ssg/>

Members at IAA

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Members at other institutions

A.A Djupvik (NOT, ORM, La Palma, Spain) [†]

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Collaborators

A. Eckart

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Lines in the Group

Scales of Star Formation

- Stellar Complexes
- Molecular Clouds
- Stellar Clusters
- Massive Stars (Binary and Trapezium systems) †

Galactic center

- Kinematics and mass of Sagittarius A* and the nuclear star cluster of the Milky Way

Surveys, Instrumentation

- ALHAMBRA, OTELO, PAS
- OSIRIS

- ▶ Hierarchical structure of star formation, from star complexes to individual young stars inside embedded clusters
- ▶ Spatial distribution related to the stepped structure of the interstellar medium or, at least, the morphology of the densest regions
- ▶ Star clusters as instruments to analyze the extent of the relation between the cloud and the stars distribution, and the resulting Mass and age distributions

- ⇒ Birth and Internal Evolution of Stellar Clusters
- ⇒ Massive Stars in the Milky Way
- ⇒ Pre-Main Sequence (PMS) Stars in Clusters
- ⇒ The Nuclear Star Cluster of the Milky Way

⇒ Methodology and tools

- # Precise estimation of the physical variables for a star from photometric data.
- # Combining high spatial-resolution images with optical distortion corrections to reach sub-milliarcsecond astrometry
- # Developing algorithms to search for stellar systems in huge astrometric catalogues.
- # Simulating fractal interstellar clouds from different physical approximations.

Birth and Internal Evolution of Stellar Clusters

What is the influence of the geometric structure of a star-forming cloud on the internal spatial structure of the stellar population formed from it?

How does it evolve with time?

What are the external and internal variables controlling the efficiency of the clustered star formation?

Massive Stars in the Milky Way

Where and how are massive stars forming in the Galaxy?

Is the fraction of massive stars linked to the mass or/and spatial structure of the stellar system where they were formed?

Do low mass and high mass stars form via the same scaled mechanism?

Pre-Main Sequence (PMS) Stars in Clusters

Age structure of forming clusters: age spread, sequential or episodic star formation, induced star formation.

Time scale of disk dissipation, depending on mass.

Mass function of forming stars.

Check of evolutionary models.

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REG, Madrid 2010 meeting

Connected to GREAT Working Group "Open Clusters & Associations" whose responsible is Alessandro Lanzafame (University of Catania).

GREAT CONFERENCE

TITLE: Stellar Clusters and Associations: A GREAT Congress on GAIA

DATE & PLACE: Granada, May 23-27th, 2011. Palacio de Congresos de Granada, Andalucía II+III Room.

ESTIMATED ATTENDANTS: 100-150

SOC:

Alfaro, E. J. (Chair), Carraro, G., González Delgado, R., Jordi, C., Lada, E., Lanzafame, A., Maíz-Apellániz, J. Walton, N., Zapatero, M. R.

LOC:

Aparicio, T., Delgado, A.J., Gallego, T., Maíz-Apellániz (Chair), Penades, M., Román, C., Sánchez, N., Sánchez-Gil, M.C., Schödel, R., Sota, A., Vicente, B.

THANKS

