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Surveying young stars with Gaia: Orion and the Solar neighbourhood

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Citation

Zari, E. M. (2019, October 22). *Surveying young stars with Gaia: Orion and the Solar neighbourhood*. Retrieved from <https://hdl.handle.net/1887/79821>

Version: Publisher's Version

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Issue Date: 2019-10-22

Propositions
accompanying the thesis

**Surveying young stars with Gaia:
Orion and the Solar neighbourhood**

1. The young stars in the Orion OB association are spread over the entire association area and loosely concentrated around a few known clusters.
(Chapter 2)
2. Star formation in the Orion OB association consisted of multiple events, which created kinematic and physical sub-structure.
(Chapter 2 and 3)
3. The three dimensional distribution of upper-main sequence and pre-main sequence stars in the Solar neighbourhood does not show any evidence for the existence of the Gould Belt.
(Chapter 4)
4. *Gaia* astrometry allows for precise studies of the kinematic properties of the runaway star population within 1 kpc from the Sun. *(Chapter 5)*
5. OB associations are not the expanded remnants of young star clusters.
6. Radial velocities for the dispersed young population of OB associations are needed to conclusively determine their star formation history.
7. A near infra-red astrometric mission can overcome the severe limitations of our understanding of the structure of the Milky Way.
8. A scientific result is either evident or not statistically significant after the first data visualization.
9. The value of scientists does not lie in the number of papers they publish. Research institutions need to broaden how they measure scientific productivity.
10. Open data policies are both a blessing and a curse.
11. Debates on diversity and inclusion that focus exclusively on gender defeat their own purpose.

Eleonora Zari,
August 2019