

## **Program of the Workshop**

The second release of the Gaia reference star catalog allows us to realize astrometric reductions of old observations with an increased accuracy. Moreover, the star proper motions are so accurate that it allows to realize astrometric reductions at the mas-level accuracy, one century ago. Old observations that were reduced with former reference catalogs (500 to 1000 mas one century ago) will benefit from these last improvements, allowing us to observe in the past with today accuracy. Obviously in parallel, the challenge also consists in increasing the astrometric accuracy of the reduction process.

During the workshop, we will plan the future works such as the selection of old data to be re-reduced according to scientific goals, and the process for photographic plates digitization and reduction.

The workshop will be declined with the following topics:

- The inventories of photographic plates. Most of the observatories have huge sets of photographic plates. Some have already made precise inventories, others have begun inventories that need to be completed (metadata should be present for all plates). An easy tool for the search of plates should be elaborated.
- A selection of "interesting" plates should be realized following scientific criteria. It will not be possible to digitize all plates of any body, thus we should consider a selection of the best plates made at specific dates related to the scientific goals.
- The choice of criteria for the plate digitization, depending on the nature of the materials (size, scale, limit magnitude) and on the needed information (astrometry, photometry, ...).
- Developing new reduction methods adapted to the increase in accuracy.
- The processes of the plate analysis.

The participants should have projects to present and discuss, in order to plan the use of the scanning machine for the next months.