2019 Spitzer Lecturer Anthony Brown Leiden University

Colloquium
Tue May 7, 11:00-12:00
Gaia: mission status and results from the second data release

I will present the Gaia mission status, the plans for an extended mission, and a summary of the contents planned for future Gaia data releases. This is complemented by highlights from the science harvested from Gaia DR2.

- - - - -

Thu May 2, 11:00-12:00 - Gaia: Celestial Inventory from the Solar System to the Milky Way

An overview of the Gaia mission is provided with brief descriptions of the spacecraft, scientific instruments, and the way data are collected on-board Gaia. This is followed by an overview of all the data products planned for current and future Gaia data releases and the plans for the extended Gaia mission. In the final part of the lecture I discuss future options for (space) astrometric surveys, including considerations on accuracy scaling and some of the difficulties to be solved when aiming for orders of magnitude improvement over Gaia.

Fri May 3, 1:00-2:00 - Astrometry basics and the interpretation of astrometric data

The basics of astrometry are discussed in terms of the vector formulation used in the Hipparcos and Gaia data processing. The material is aimed at the use and interpretation of modern astrometric catalogue data but does not include a detailed treatment of astrometry and the astrometric measurement process. The second part of the lecture is aimed at the analysis of Gaia data, following the paper by Luri et al. (2018), with an emphasis on the responsible use of parallax data.

Mon May 6, 2:00-3:00 - Gaia science tour

A selection of science results from Gaia DR1 and DR2 are discussed. This lecture is complementary to the colloquium.

Wed May 8, 2:00-3:00 - Ins and outs of Gaia DR2

An overview of the contents of Gaia DR2 is provided with an emphasis on the less well known aspects. Subsequently the following topics on the use and analysis of the catalogue data will be discussed:
   * Uncertainties, uncertainty inflation, systematic errors
   * Known issues in Gaia DR2
   * Use of photometric and radial velocity data
   * Data quality filtering
   * Information useful in construction selection functions for Gaia
   * Propagation of source coordinates to other epochs and cross-matching

All lectures will take place in the Peyton Auditorium