

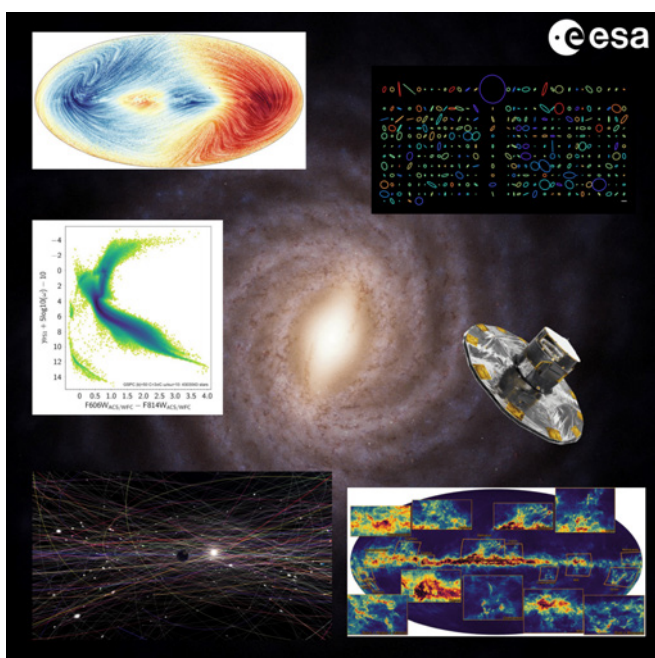


# COLLOQUIUM

CRC 1601 HABITATS OF MASSIVE STARS ACROSS COSMIC TIME

**May 27, 2025**

University of Cologne  
Physics Institutes  
Lecture Hall III, 2:00 pm



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## **The (2 billion) promises of Gaia: Data Release 3 and beyond**

The Gaia mission is transforming our understanding of the Milky Way by delivering the most precise and comprehensive stellar catalog ever created. With over 2 billion sources, Gaia's data holds the promise of unprecedented discoveries in astrophysics, from stellar evolution to the structure and dynamics of our galaxy. Gaia Data Release 3 (DR3) represented a major milestone, providing the most detailed view of our galaxy to date. Beyond high-precision astrometry and photometry, DR3 included radial velocities for millions of stars, detailed classifications of variable stars, astrophysical parameters, and even the largest catalog of binary systems. Additionally, DR3 introduced new insights into exoplanet-hosting stars, quasars, and the interstellar medium, broadening its impact across multiple fields of astrophysics. Looking ahead, Data Release 4 and 5 will mark another major leap forward, leveraging longer time baselines and unlocking the wealth of information contained in epoch-level data. In this talk, we will showcase some of the breakthroughs made possible by Gaia DR3 and present the exciting prospects for Gaia's upcoming Data Releases.