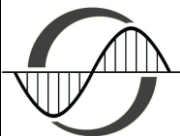




UNIVERSITÀ
degli STUDI
di CATANIA



DIPARTIMENTO DI FISICA E ASTRONOMIA
“ETTORE MAJORANA”

DOTTORATO DI RICERCA IN FISICA
CICLO XLII A.A. 2026/2027

TITLE

Star-planet Interactions in Extrasolar Planetary Systems

2 CFU

Teaching staff

Name Surname: Dr. Antonino Francesco Lanza

Email: antonino.lanza@inaf.it (preferred form of contact)

Office: INAF-Osservatorio Astrofisico di Catania, Via S. Sofia, 78 – 95123 Catania – tel. 095 7332 216; institutional webpage at INAF: <https://www.oact.inaf.it/antonino-lanza/>

Reception hours: From Monday to Friday by making an appointment by email

Program of the course:

1. Overview of star-planet interactions in extrasolar planetary systems;
2. Tidal interactions;
3. Stellar high-energy radiation and evaporation of planetary atmospheres;
4. Star-planet magnetic interactions;
5. Hot Jupiters, stellar rotation, and magnetic activity.

Bibliography:

H. Deeg, J. A. Belmonte (Eds.) 2025, *The Handbook of Exoplanets*, Springer-Nature; Section on Stars and Planets: Interactions.

For more information on the Handbook, please see:
<https://link.springer.com/book/9783032068552>

M. Perryman, 2018, *The Exoplanet Handbook*, 2nd Edition, Cambridge Univ. Press, Cambridge; digital version available at:
<https://www.cambridge.org/core/books/exoplanet-handbook/750759E015FDCF469D141F0046198519>

A.F. Lanza, 2022, *The Role of Interactions between Stars and Their Planets*, chapter in *Demographics of Exoplanetary Systems*, K. Biazzo, V. Bozza, L. Mancini, A. Sozzetti (Eds.), Astrophysics and Space Science Library vol. 466, Springer-Nature; digital version at:
https://link.springer.com/chapter/10.1007/978-3-030-88124-5_2

Research papers describing the latest updates in the field will be proposed and briefly discussed with the students.