



**MAX PLANCK INSTITUTE
FOR SOLAR SYSTEM RESEARCH**



PhD project: Characterization of magnetic star-planet interaction in the time domain

Apply by 1 October 2026 for a starting date in early 2027

AUGUST 28, 2026

MICS | [Open PhD Project](#)

The soon-to-be established research group on star-planet interactions is offering a PhD opportunity, focused on confirming and characterizing magnetic star-planet interaction through time-resolved X-ray observations.

In recent years, exoplanetary science has undergone a major shift – moving from exoplanet detection towards understanding star-planet systems as a whole, including the host star, interplanetary medium and galactic context. Specifically, tidal and magnetic interactions between planets and their host stars have been recognized to be able to modulate the evolution of both, including the atmospheric evolution of the planet and its habitability. The newly established research group led by Dr. Ekaterina Ilin seeks a PhD student with an interest in stellar magnetism and/or exoplanetary science to develop novel ways of detecting and characterizing the mutual influence of stars and planets with a focus on the influence of planets in short orbits on the magnetism of their host stars.

Individual systems with emission suspected to be planet-induced have been reported at X-ray, optical, and radio wavelengths, but confirmation and characterization has been difficult: the decisive test is whether the emission recurs on the planetary orbital period. The project applies it to both new and archival XMM-Newton observations of systems with known or suspected planet-induced emission. Depending on the interests of the candidate, the project may also include:

- Extension to radio and optical diagnostics to test different interaction scenarios
- Extension to low mass binary interactions at optical wavelengths
- Development of empirically motivated models of magnetic interaction, and predictions for how to distinguish them observationally.
- Design and submission of observing proposals, including target selection from the interaction candidates identified within the project.

Due to the nature of this project, preference will be given to candidates with experience in the reduction and analysis of X-ray, radio or other time-series data, and in scientific programming in Python.

You will work in a newly formed team of two postdocs and a PhD student, led by the PI (Ekaterina Ilin), and collaborate closely with both postdocs, who will be working primarily on a large optical photometric survey of young stars in search of interacting systems. The student is expected to present at workshops and international meetings in both the stellar and exoplanet communities.

Magnetic Interactions in (Sub)Stellar Companion Systems (MICS) group at MPS

Coming soon: Research Group led by Ekaterina Ilin (starting 1 October 2026 at MPS).

Application and admission to the IMPRS Solar System School

Please note that regular deadlines apply for the submission of applications.

IMPRS PhD online application system

Please check for currently active calls and advertised open projects first. To apply, please register in the on-line application system. You can then log in to your account using your registration ID and password. You will be able to edit, save, preview, and submit your application, and follow its status after submission.

Advisor ▾

Ekaterina Ilin

Incoming Research Group Leader

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🌐 <https://ekaterinailin.github.io/>

Starting at MPS from 1 October 2026