In the search for habitable worlds, planets around M dwarfs are attractive targets given that the habitable zone around these stars are located at short periods. However, it is also true that tidal dissipation would be strong for these planets and it is unclear how this would affect the conditions for habitability including mantle dynamics, presence of magnetic field, orbital evolution, etc. In this project(s) we will study how tidal dissipation affect the properties of rocky planets around M stars, including where tidal dissipation happens within the planet, its extent and effects on internal dynamics. We will improve upon the widely used constant tidal dissipation factor (Q) to include the effects of melting, and rheology.

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