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## **Io's auroral footprints: MHD simulations of the interaction between Io and Jupiter**

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The electromagnetic interaction between Jupiter and its innermost Galilean moon Io is a prime example for moon-planet and star-planet interaction. A very striking feature is the Io Foot Print (IFP) in Jupiter's upper atmosphere. With the Juno spacecraft orbiting Jupiter, new insights about the complex structure of the IFP have been achieved which can not be fully explained by existing models. A deeper understanding is necessary to explain these Juno observations [Mura et al. 2018, Szalay et al. 2018]. For that purpose a simulation of the system with the single fluid MHD-Code Pluto is set up to study the Alfvén wing generated by Io in detail. In our study, we use a model similar to Jacobsen et al. 2007 with a constant magnetic field and spatially varying density. Then we increase the complexity of this model by including a more realistic wave generator, i.e. Io, and a more complex model of the Jovian inner magnetosphere.