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# Constraints on photon mass and dark photon from the Jovian magnetic field

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The Jovian magnetic field, being the strongest and largest planetary one in the solar system, could offer us new insights into possible microscopic scale new physics, such as a non-zero mass of the Standard Model (SM) photon or a light dark photon kinetically mixing with the SM photon. We employ the immense data set from the latest Juno mission, which provides us unprecedented information about the magnetic field of the gas giant, together with a more rigorous statistical approach compared to the literature, to set strong constraints on the dark photon mass and kinetic mixing parameter, as well as the SM photon mass. The constraint on the dark photon parameters is independent of whether dark photon is (part of) dark matter or not, and serves as the most stringent one in a certain regime of the parameter space.

## Mini Symposia (Invited Talks Only)

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