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Magnetic shielding of close-in exoplanets: The case of Corot-7b

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Abstract

Magnetic shielding is important for the evolution of close-in exoplanets. We focus on the example of the close-in terrestrial exoplanet Corot-7b. Based on the observed planetary characteristics (mass, radius, orbital distance, and age), we discuss whether it is likely that Corot-7b has a magnetic field and set upper limits for the magnetic field strength. We consider both (a) the interaction with the dense and fast stellar wind encountered in the vicinity of young stars, and (b) the interaction with CME-like stellar coronal mass ejections. For both cases, we discuss implications for the planet and it's atmospheric evolution.