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Investigation of Spacecraft Plasma Interactions on Mercury Mission Orbiter

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The Mercury Mission Orbiter (MMO) spacecraft is one of the two satellites from the joint ESA-JAXA mission planned to explore the planet Mercury and its environment and is planned to be launched on 15 August 2015. The spacecraft embarks a set of instruments to measure fields and particles in Mercury magnetosphere. For many of these instruments a careful analysis of the possible electrical interferences may be crucial. In this paper we present a first analysis of the Mercury plasma environment and the potential sources of interference for the plasma instruments. We then estimate the impact of the interferences on the measurements and propose an approach to take them into account for scientific exploitation.