



## **Reconstruction of the magnetic connection from Mercury to the solar corona.**

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We present a study based on a number of selected events characterised by a significant increase in the solar proton fluxes measured by MESSENGER during the period 2011-2013, and most likely related to a CME. For each event, the magnetic connection between Mercury and the solar corona has been reconstructed, in order to identify the possible source of the accelerated particles on the solar surface [1]. The transport of the magnetic field lines in the heliosphere is evaluated with a Monte Carlo code that adds a random displacement at each step of the integration along the Parker magnetic field model [2]. The simulation is tailored to each specific event by using the magnetic fluctuation levels obtained at Mercury by MESSENGER and the values of the solar wind velocity measured at 1 AU. By considering the values of the fluctuation levels of the interplanetary magnetic field recorded by MAG-MESSENGER two days before the event and the values of the fluctuation levels of the interplanetary magnetic field on the day of the event, we are also able to appreciate the effects on the solar wind magnetic field perturbations induced by the shock of the coronal mass ejection.

## **References**

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