



# The Driving of the Earth's Magnetosphere by the Solar Wind

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Despite its importance for space physics and space weather, the physics underlying the coupling of the solar wind to the Earth's magnetosphere is poorly understood. It is widely believed that there are two pathways to coupling: via magnetic-field-line reconnection between the solar wind and the dayside magnetosphere and via a viscous-type interaction between the solar wind and the magnetosphere. The dayside reconnection rate largely controls the amount of coupling, but the physics of coupling happens after the field lines are connected. It will be argued here that, contrary to decades of prior wisdom, the motional electric field of the solar wind does not control the reconnection rate. Problems underlying statistical studies of the driving of the magnetosphere by the solar wind will be discussed and potential deficiencies of MHD simulations of the solar-wind-driven magnetosphere will also be pointed out. Finally, a list of outstanding questions about solar-wind/magnetosphere coupling will be presented.



4:00pm in CAS 502. Refreshments served at 3:45pm in CAS 500.

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Next Week

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