

THE ROLE OF THE BOW SHOCK IN SOLAR WIND-MAGNETOSPHERE COUPLING

R. E. Lopez¹

¹*Department of Physics, University of Texas at Arlington, Arlington, TX,
76034, USA*

The Earth's bow shock is not generally considered to be an important factor in solar wind-magnetosphere coupling. However, during periods when the solar wind flow has a low Mach number, the force exerted on the solar wind by the current produced on the bow shock can be the largest force standing off the solar wind. In addition, the bow shock is a generator, extracting mechanical energy from the solar wind and converting it into electromagnetic energy that is subsequently delivered back to the flow and also directly to the Earth. In this presentation I will discuss these issues that occur during unusual solar wind conditions and make the case for re-considering the importance of the bow shock to solar wind-magnetosphere coupling.