

## **Long-Standing Unsolved Problems In Solar Physics and Magnetospheric Physics**

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For many decades, there have existed a number of long-standing unsolved problems in solar physics and magnetospheric physics, in spite of the great progress in every discipline in these fields. It is suggested that some of them remain unsolved because the guiding concepts, or paradigms, have no sound foundation. Here, several paradigms are chosen for examination, in light of the related observations. They are sunspots, solar flares/CMEs, magnetic clouds, the concept of magnetic flux transfer in the magnetosphere (magnetic reconnection), the diversion of the cross-tail current, and the depolarization and substorm onset.

It is obviously not the intent of this talk to provide answers to these difficult problems. Rather, basic questions are posed about the sources of the established paradigms, and it is suggested that the established paradigms are not necessarily the final answers, even if further refinements can be made.