



## **Optimization approach for the computation of magnetohydrostatic coronal equilibria**

**T. Wiegmann** (1), T. Neukirch (2), P. Ruan (1), B. Inhester (1)

(1) Max-Planck-Institute for Solar System Research, 37191 Katlenburg-Lindau, Germany, (2) School of Mathematics and Statistics, University of St. Andrews, St. Andrews, KY16 9SS, UK

We present a newly developed code for the self-consistent computation of magnetohydrostatic equilibria in the solar corona. Unfortunately the 3D coronal magnetic field and the plasma pressure and density distribution are not available directly from measurements. We propose to estimate these quantities with the help of a non-linear magneto-hydro-static model. The coronal model is based on observational data from multiple instruments. Our aim is to use measurements of the photospheric magnetic field vector (e.g. from Hinode/SOT and in future from SDO/HMI) and coronal images from the two STEREO-viewpoints as observational constraints for a newly developed magnetohydrostatic optimization code. The resulting 3D magnetic field and plasma distribution is a self-consistent equilibrium within the magneto-hydro-static approach.