

# **SOLARNET: a UV, FUV, EUV, XUV high resolution imaging, spectro-imaging and spectroscopy mission**

**L. Damé**

Service d'Aéronomie du CNRS & LESIA, FRANCE (luc.dame@aerov.jussieu.fr)

SOLARNET is a high resolution mission which encompass extremely high resolution in the UV and FUV, to access process scales of magnetic reconnection, dissipation, emerging flux, onset of Flares and CME's, origin of solar wind. The chromosphere to the low corona with emphasis on the transition zone where the magnetic confinement is expected to be maximum are at the heart of this mission which will open a whole new chapter of the physics of solar magnetic field structuring, evolution and mapping from the photosphere to the heliosphere.

SOLARNET is an inexpensive and compact medium size high resolution solar physics mission that will bring together most of the best of SOHO and TRACE. It is proposed to CNES and ESA for a new start in 2006 and a possible launch in 2011-2012 to fill the gap before the first results of the Solar Orbiter or Probe results in the late 2018 at best. Partnerships with India and China are under discussion, and several European contributions are considered.

SOLARNET instrumentation consists in a multiple instrument payload to achieve both the necessary global view of extended events and the detailed high resolution understanding of them. The major instrument is a 3-telescope interferometer of 1 meter baseline capable to provide 50 times the best ever spatial resolution achieved in Space with previous, current or even planned solar missions: 20 mas – 20 km on the Sun in the FUV. The interferometer is associated to an on-axis Subtractive Double Monochromator coupled to an Imaging Fourier Transform Spectrometer itself capable of very high spectral (0.01 nm) and very high temporal resolutions (50 ms) on a field of view of 40 arcsec and covering a spectral domain from 117.5 to 400 nm. The interferometer is completed by instruments providing larger (full Sun to several degrees) field of views and higher temperature (EUV-XUV coronal imaging) to define the context and extension of the solar phenomena. Magnetic field measure and helioseismology, a strong asset of SOHO, are also intended with both velocity and diameter measures, allowed by a non-eclipsing Sun synchronous orbit (1000 km). We will review the scientific program of SOLARNET, review the proposed instrumentation fulfilling these goals and give a short overview of the major mission aspects.