



## **Sunspots Meridian Motion and the Swimming out of the Magnetic Tubes**

**A. S. Tomić (1), I. Vince (2)**

(1) Peoples observatory, 11000 Belgrade, Kalemegdan, Serbia (atomic@aob.bg.ac.yu)

(2) Astronomical Observatory, 11000 Belgrade, Volgina 7, Serbia

We handled data for 5744 sunspot, obtained on Debrecen Heliophysical Observatory, for years 1986-1989 and 1993-1995 with high accuracy measuring sunspot coordinates. By method of last squares we solved for each spot inverse problem relations. On this way were obtained mean equatorial and mean meridional motion with higher accuracy, which gave possibility for explanation of the meridian motion and butterfly diagram as the consequence of the same cause – the outswimming of the magnetic tubes. The classical Coulomb interaction between the magnetic dipoles is applied to the solar magnetic tubes, what satisfactory explained the mechanism of swimming out of the magnetic tubes, and sunspots meridian motion.

**Key words:** Sun: sunspots, Sun: magnetic tubes, Sun: rotation, Sun: atmospheric motions.