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Solar flares simultaneous investigations in radio and x-ray

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In solar flares, both hard X-ray emissions and decimetric bursts showing fine structures are excited by energetic electrons. The study of the relationship between these two kinds of emissions is therefore expected to lead to a better understanding of the energy release, and acceleration and propagation of energetic electrons during the solar flares. The Brazilian Solar Spectroscop (BSS) is in operation at National Institute of Space Research (INPE), in São José dos Campos, Brazil, since 1998. BSS operates in decimetric frequency range (1000-2500 MHz), in conjunction with a 9 meter diameter parabolic antenna. The solar observations are carried out from approximately 11 to 19 UT, with high time (10-1000 ms) and frequency (3 MHz) resolutions and the absolute timing accuracy is less than 3 milliseconds. Data are digitized up to 100 frequency channels. Since March 2002 to August 2003, a total of 13 solar flares have been recorded by the BSS simultaneously in X-rays by the "Ramaty High Energy Solar Spectroscopic Imager" (RHESSI) satellite. Out of these, three flares have been selected for multi-spectral investigations: (a) 04 July, 2003 (14:41 UT); (b) 04 July, 2003 (16:37 UT) and (c) 05 August, 2003 (12:28 UT). Here, will be presented the source parameters of the X-ray associated with radio sources and the possible location of acceleration region. The characteristics of the energetic electrons and their time evolution will be also discussed.

Keywords: **solar flares, radio bursts, x-ray emission**

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