



Coronal loop sources in solar plasma: an analysis of RHESSI observations

miguel duval poo (1), michele piana (1), and anna maria massone (2)

(1) universita di genova, dipartimento di matematica, Italy (piana@dima.unige.it), (2) CNR SPIN, genova (annamaria.massone@cnr.it)

Hard X-ray bremsstrahlung emission is a reliable signature of how high-energy electrons are accelerated in solar flare plasma and, specifically, of the acceleration mechanisms that propagate such electrons through the ambient solar atmosphere. Interestingly, in the last decade, the Reuven Ramaty High Energy Solar Spectroscopic Imager (RHESSI) has observed a couple of dozens of events characterized by a predominant emission from the coronal plasma, instead than the usual dominant chromospheric foot-point sources. According to a cold-target energy loss rate model, the penetration depth of suprathermal electrons should increase with energy and therefore the loop source size should increase accordingly. Several papers have analyzed a set of coronal flare loops and verified such behavior. However, in view of the importance of the conclusions reached from these earlier works, we have re-analyzed the same flaring events exploiting more recent (and more sophisticated) imaging and data analysis techniques, taking care that any foot-point emission is not included in the estimation of the extent of the coronal loop along the magnetic loop. This talk will describe the results of this analysis