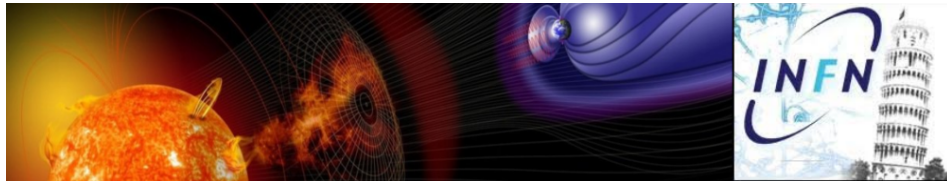


# RHESSI-20 Workshop: Preparing for the Next Decade in High-Energy Solar Physics Research



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## Hard X-rays from flare ions

*Thursday, 8 July 2021 17:00 (20 minutes)*

As well as their gamma-ray signatures, energetic flare ions at the Sun also produce hard X-rays (HXR) by various mechanisms. Compton scattering of gamma-ray photons was recently studied by Murphy and Share and proton bremsstrahlung by Heristchi and others. Further bremsstrahlung contributions come from secondary electrons (and positrons) produced via pion decay and also as knock-on products of primary ion collisions. We use the Monte Carlo code FLUKA to study the resulting HXR. We note that the HXR spectrum from knock-on electrons would directly reflect the primary ion energy distribution. Ion contributions to the HXR spectrum will not be competitive with bremsstrahlung from primary electrons. However we discuss the possibility of diagnosing HXR's from ions alone in "over-the-limb" Fermi LAT events and comment on the additional information offered by microwave observations.

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