



## **Radio Synthetic Images: a valuable Tool to Disentangle Radio Emitting Processes**

Sofia Moschou, Igor Sokolov, Dmitry Borovikov, Ofer Cohen, Jeremy Drake, Julian Alvarado-Gomez, and Cecilia Garraffo

(sofia.moschou@cfa.harvard.edu)

Radio electromagnetic wavelengths can be used for ground observations since they have a favorable atmospheric window. Moreover, a number of physically very different mechanisms can produce radio emission. These radio emitting mechanisms can be linked to thermal processes of the plasma fluid, to radio bursts, and shocks waves, produced by non-equilibrium electron velocity distribution functions. These characteristics make the incorporation of radio synthetic tools into our simulations highly valuable for disentangling and understanding the complicated underlying processes that emit in the radio wavelengths. We present observationally driven state-of-the-art simulations capturing Coronal Mass Ejections (CMEs) in the Sun as they propagate interacting with the background solar wind. We produce radio synthetic images that capture both the quiescent solar disk and activity components, such as the CME, with the ability to switch on and off the different radio emissions.