MAS21-2021-000072

Abstract for an Invited Paper
for the MAS21 Meeting of
the American Physical Society

The Nature of Solar Flare Reconnection

JOEL DAHLIN, NASA Goddard Space Flight Center

Solar flares are among the most energetic events in the solar system, capable of releasing over $10^{3}2ergsintheformsofheating, energeticparticles, andbulkmotion.Thisenergyreleaseisknowntobedrivenbymagneticreconnection, aplasmaprocessthatexplos$ $10MK)plasmathatilluminatethereconnectedmagneticstructures.Wepresentanewhigh - resolution, three - dimensionalmagnetohydrodynamicsmodelofasolarflareperformedwiththeARMScode.Inourmodel, theflareribbonsexhibitcharacteristicwhorlsthatrepres generatedstructuresknownasplasmoidsthatarethoughttobeimportantforparticleacceleration.Wefurthermoreshowthattheorientationoftheflareloopsreveal calledguidemagneticfieldthoughttoplayacriticalroleinplasmoidstructureandassociatedparticleacceleratione ficiency.Wediscussimplicationsforunderstan