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Oral
(Invited Talk)
Multiple radio emissions are produced by shock waves in our solar system. These include type II solar radio emissions associated with CME-driven and perhaps blast-wave shocks in the corona and solar wind, radio emissions produced upstream of Earth's bow shocks, radio emissions associated with corotating interaction regions (CIRs), and gyro-synchrotron emission from CMEs. The first three of these are produced near the fundamental and second harmonic of the electron plasma frequency - the standard theory involves electrons accelerated and reflected back upstream of the shock, the generation of Langmuir waves via the electron beam instability, and nonlinear coupling of Langmuir waves to give the radio emission. The presentation starts by reviewing the theory and observational status of the radio emissions. Subsequently it addresses how PUNCH can track and characterise the shock waves and associated density structures through the corona and solar wind, and then in combination with independent radio observations constrain theories for the radio emissions and the space weather consequences of the shocks and their drivers.
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