

OBSERVED EQUILIBRATION TIMES IN ABRUPTLY ENERGIZED ASTROPHYSICAL PLASMAS

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I will review the typical equilibration times of abruptly energized, e.g. shocked, astrophysical plasmas. These plasmas are found in stellar winds, supernova remnants and other interesting high energy sources. The vast range of different time scales in a single source from single-species thermalization to full ionization times provides a rich variety of plasma diagnostics. The actual measurement of these times and thus the inferred energy history of the plasma are not easily revealed. Nonetheless, I will show a few interesting examples of where these measurements have been possible.