

Thermal Diagnostics of the Solar Corona with SDO/AIA

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This is a tutorial on how to perform differential emission measure (DEM) inversions on extreme ultraviolet imaging observations of the solar corona taken by the Atmospheric Imaging Assembly (AIA) onboard NASA's Solar Dynamics Observatory (SDO). We will describe the method (Cheung et al., 2015, ApJ, 807, 2), show validation tests and walk through examples on how to use the AIA team's DEM inversion code. We then apply the method to address some example science topics, including the (1) thermal structure of active regions and emerging flux regions, (2) magnetic reconnection outflows and (3) chromospheric evaporation in solar flares (including coordinated observations with IRIS).