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Coronal heating properties in active region core loops: observations and modeling of chromospheric/transition region/coronal emission

I will present results of our recent investigations of coronal heating properties in active region cores in non-flaring conditions, using joint chromospheric/transition region/coronal observations coupled with detailed modeling. In particular, I will discuss observations with the Interface Region Imaging Spectrograph (IRIS), which provides unprecedented high spatial, temporal and spectral resolution of the chromosphere and transition region, joint with coronal observations with Hinode (XRT and EIS) and SDO/AIA. I will discuss how these observations and models (1D HD and 3D MHD, with the RADYN and Bifrost codes respectively) provide useful diagnostics of the coronal heating processes and mechanisms of energy transport.