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## Observations of a kink-unstable coronal loop using DKIST/DL-NIRSP and Hinode/EIS

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A 3D non-eruptive kink-unstable coronal flux rope is simulated by solving numerically the nonlinear magnetohydrodynamic equations with parallel thermal conduction. The time evolution from the initial unstable equilibrium is forward modelled by generating synthetic spectral intensity maps as observed by DKIST/DL-NIRSP and Hinode/EIS using the CHIANTI database. The predicted signatures of the new ground-based Daniel K Inouye Solar Telescope (DKIST) in the coronal off-limb mode of its Diffraction Limited Near Infrared Spectropolarimeter (DL-NIRSP) instrument are compared and contrasted with signatures from the Hinode satellite's EUV Imaging Spectrometer (EIS). The reconstructed observations show detailed, fine-scale structure and exhibit signatures of wave propagation, redistribution of heat, flows, and fine-scale bursts.

**Apply to be considered for a student award (Yes / No)?**

No

**Level for award (Hons, MSc, PhD, N/A)?**

N/A

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