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Photospheric driving of sustained kink oscillations in coronal loops

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Sustained kink oscillations in coronal loops have long been observed in TRACE, SDO/AIA, and more recently in Solo/EUI images. Although their properties are quite well-known now, their driver and excitation mechanism remain under active debate. In this contribution I give an overview over recent publications and discuss how the different proposed ideas/theories for photospheric driving can be reconciled with each other and with observations. A 3-D radiative MHD simulation using the Bifrost code (Kohutova et al. 2021, 2023) is explored to get first insights. We then exploit high-resolution coronal and photospheric observations taken recently by Solo/EUI/HRI and the Swedish 1-m Solar Telescope (SST) respectively during a dedicated coordinated campaign run in October 2023. This study provides actual numbers to quantify the driving of coronal loop footpoints that is derived from horizontal flows observed in the photosphere by SST. An attempt is then made to link the driver parameters with the properties of sustained kink oscillations detected in EUI/HRI. This work has been funded by the Research council of Norway (grant 324523).

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