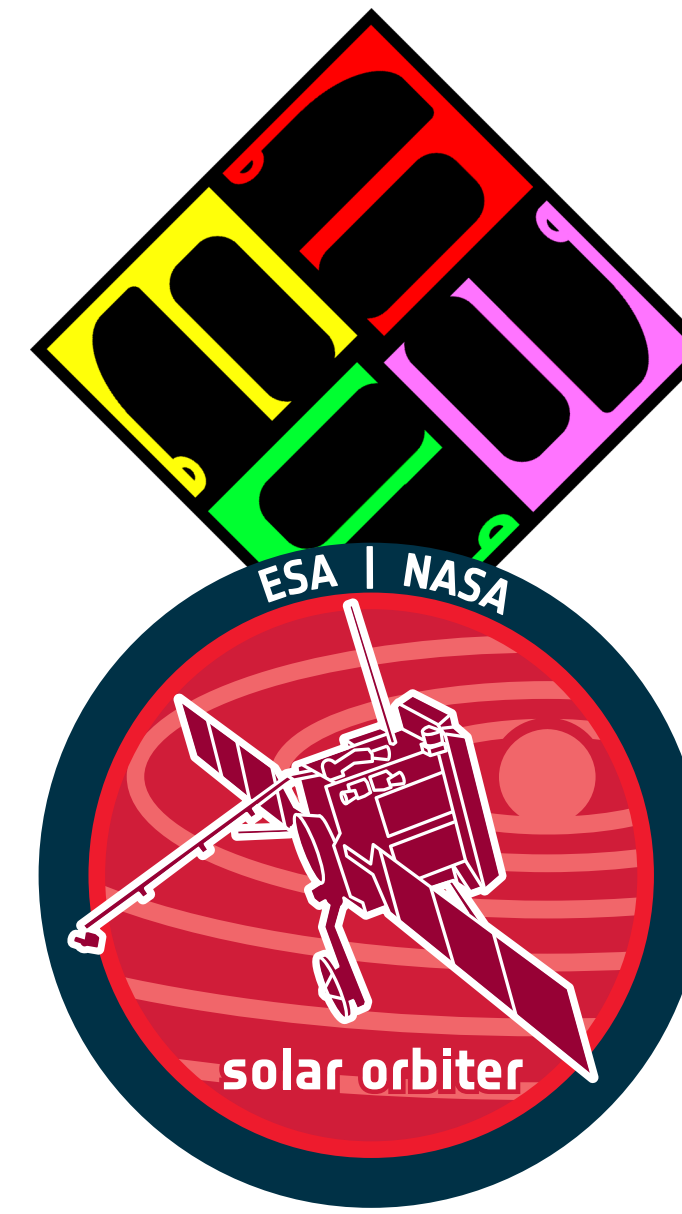
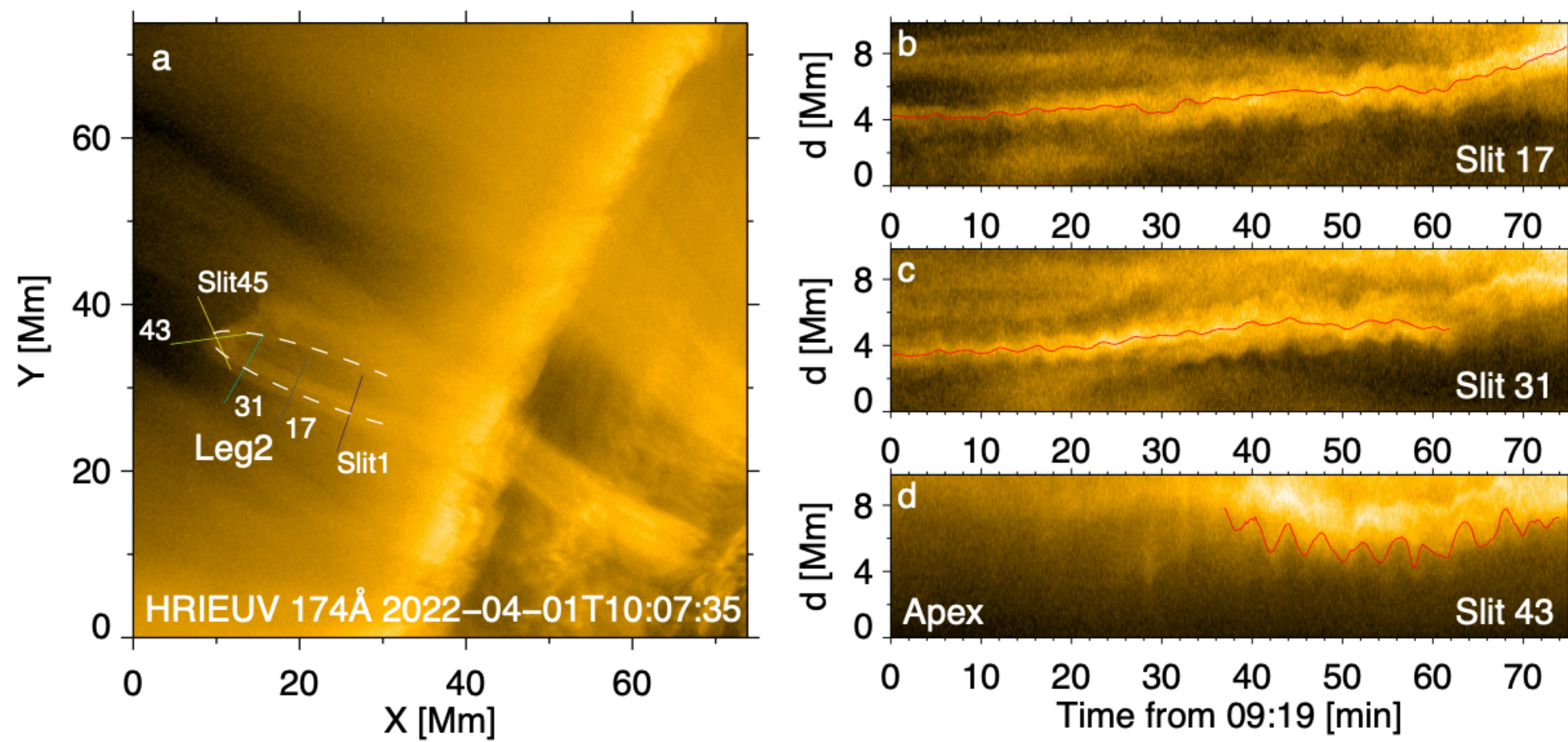


EUI High Resolution Observations of Decayless Oscillations

D. Berghmans, D. Lim, E. Petrova, S. Zhong, A.K. Shrivastav, S. Mandal, E. Kraaikamp, C. Verbeek, K. Stegen, A. Zhukov, S. Gissot, T. Van Doorselaere

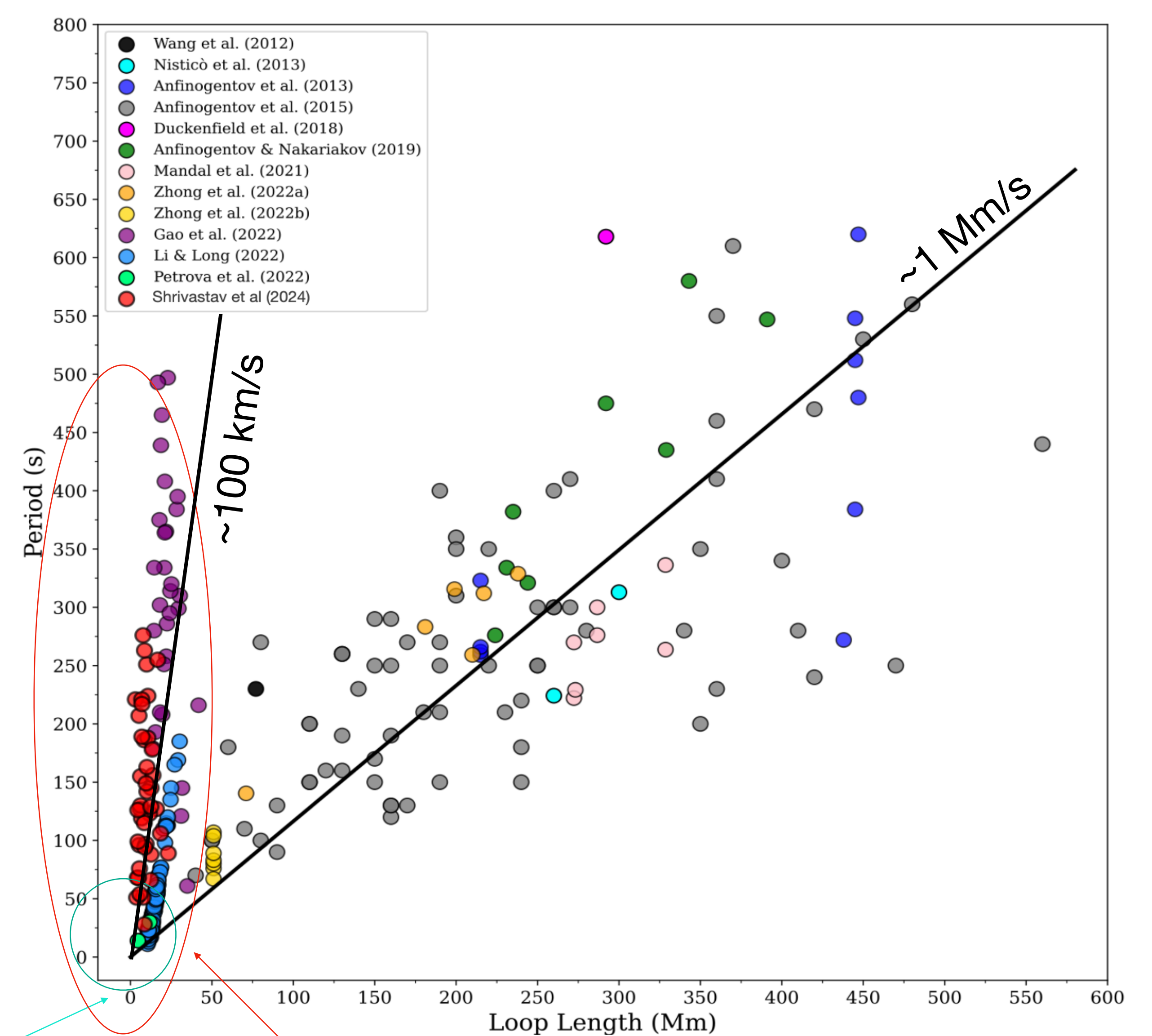


The HRIEUV telescope of EUI on Solar Orbiter

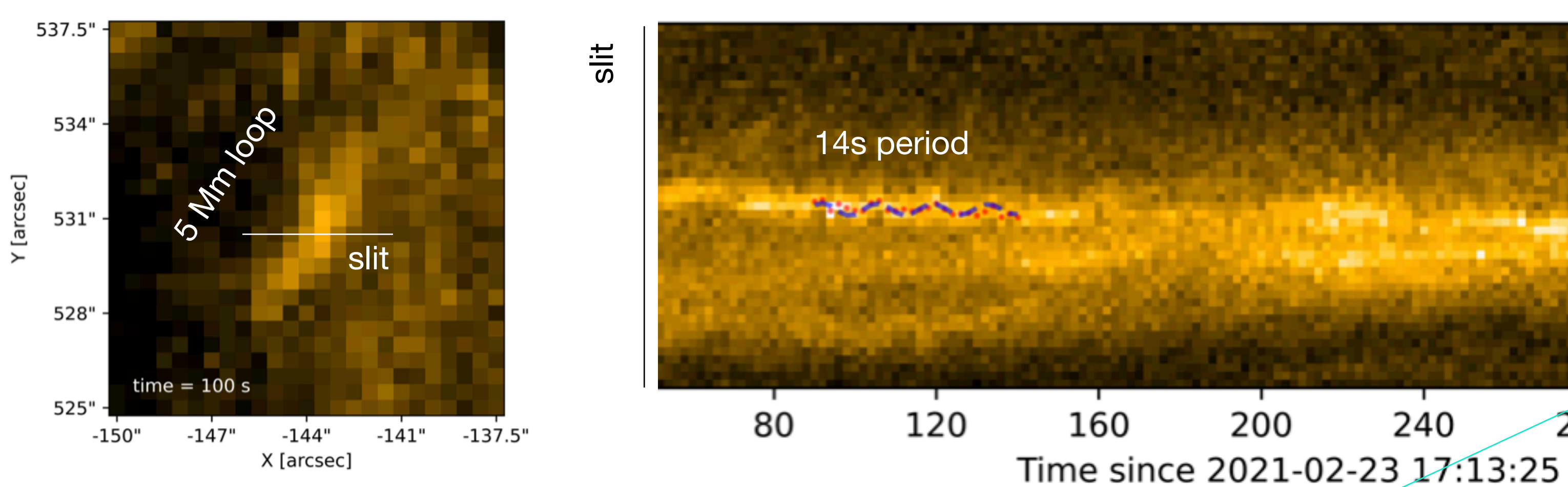
- 17.4 nm bandpass
- imaging cadence 2-10 sec
- spatial resolution (2 pix) 200 km (at perihelion)

Talk by Sihui Zhong Tuesday 14:15
"Polarization of decayless kink oscillations..."

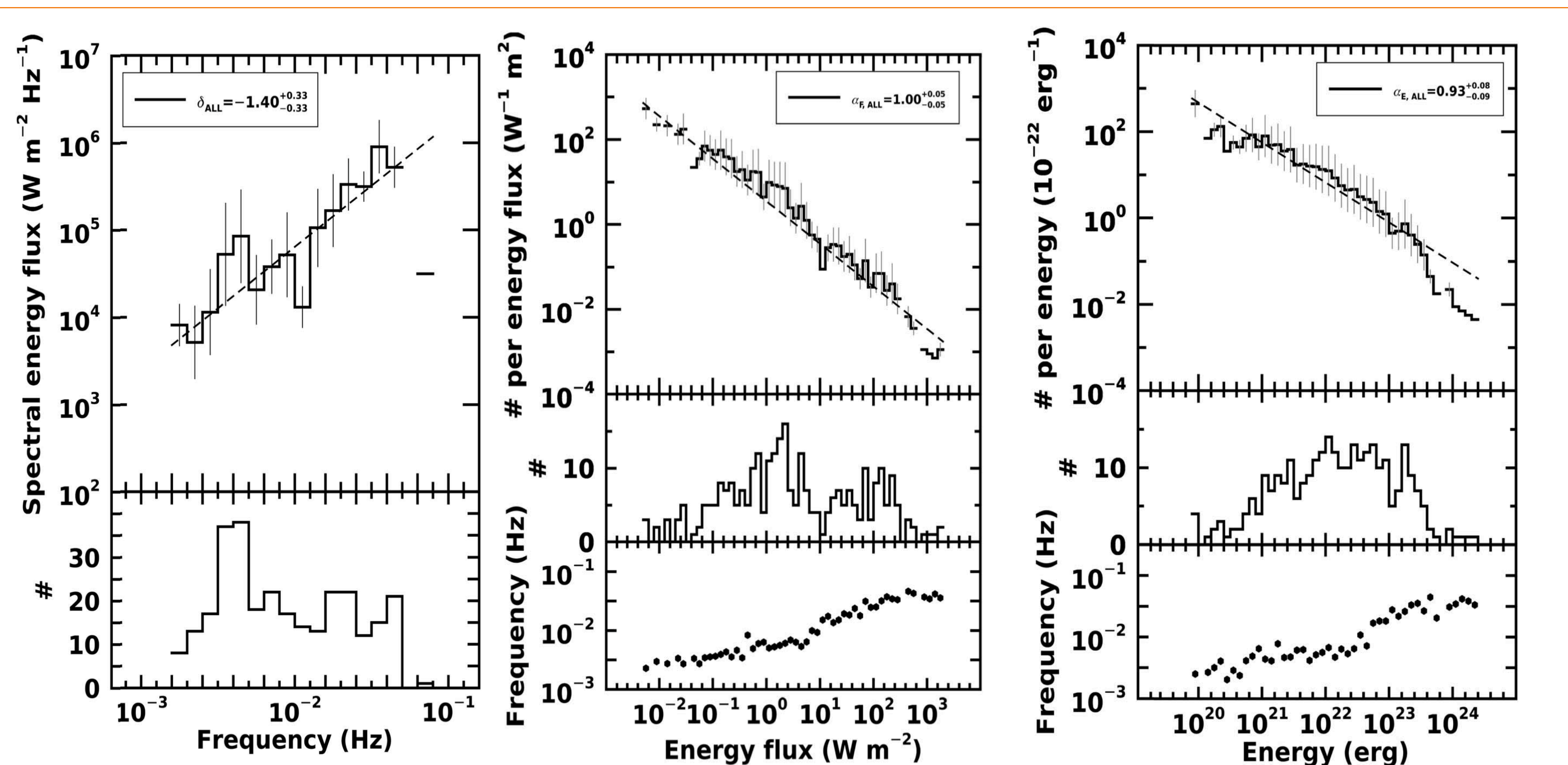
- Decayless oscillations are routinely observed with AIA and now also with HRIEUV. Co-observations EUI & AIA detect the same decayless oscillations, confirming that they are of solar origin.
- Decayless oscillations are different from flare-induced oscillations as they do not dampen during their lifetime and they are independent of flares. In fact the driver is unknown.
- These oscillations have been interpreted as kink-waves and the ratio between the loop length and the period tends to be in the order of 1 Mm/s, suggestive of the coronal Alfvén speed.



Decayless oscillations in short loops have relatively long periods, with a ratio loop length/period in the order of ~ 100 km/s.



HRIEUV revealed the smallest decayless oscillations so far: loops of less than 5 Mm, oscillating with a period as fast as 14s.



To be explored:

- what drives decayless oscillations?
- why do we have two branches with different ratio loop length/period?
- are there enough decayless oscillations in different coronal zones for coronal heating?

Find out more:

- Zhong et al 2022MNRAS.516.5989Z
- Mandal et al 2022A&A...666L...2M
- Petrova et al 2023ApJ...946...36P
- Lim et al 2023ApJ...952L..15L
- Zhong et al 2023NatCo..14.5298Z
- Shrivastav et al 2024A&A upcoming

Affiliations

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Meta-analysis of 290 oscillations (AIA and EUI) by 10 authors. Higher energy fluxes are generated from higher-frequency oscillations. The total energy generated by transverse oscillations ranges from about 10^{20} to 10^{25} erg, (cfr energies for nanoflare 10^{24} to 10^{27} erg). The respective slope results imply that high-frequency oscillations could provide the dominant contribution to total coronal heating generated by decayless transverse oscillations.