

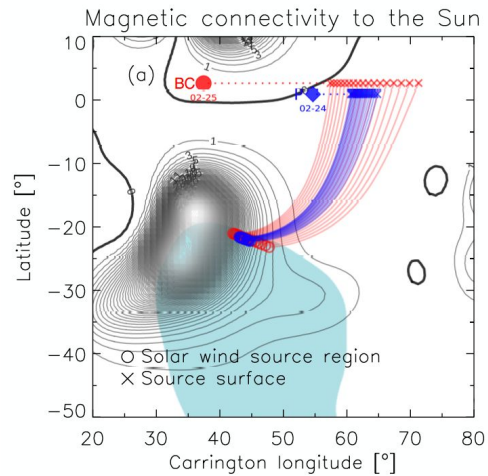
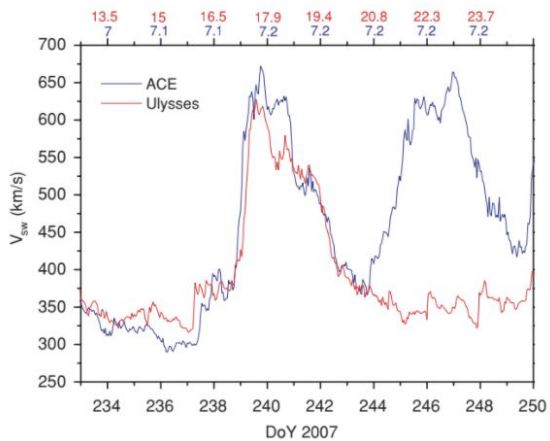
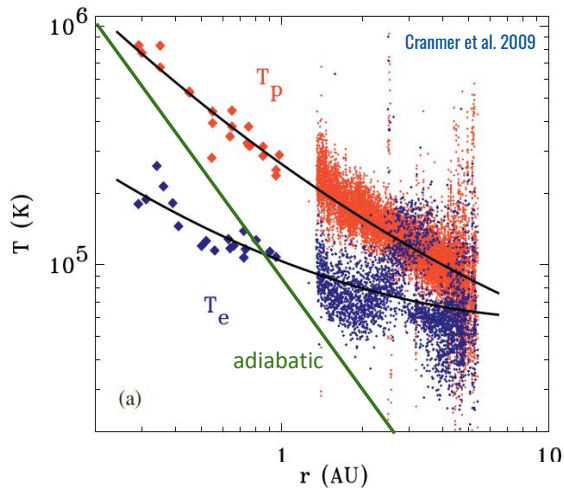
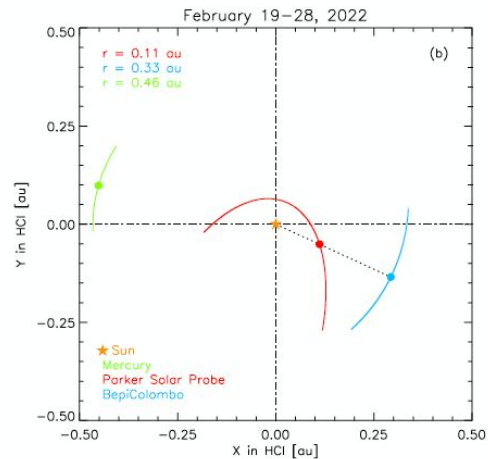
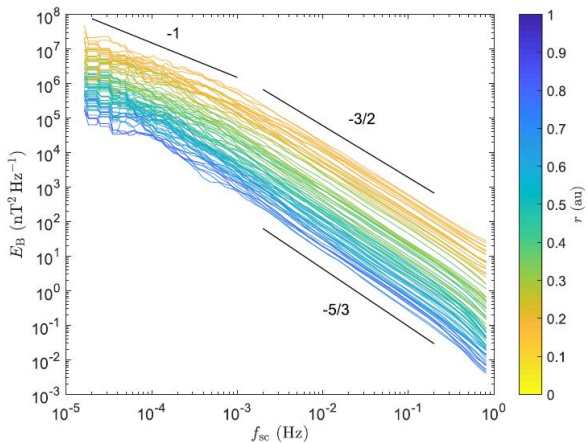
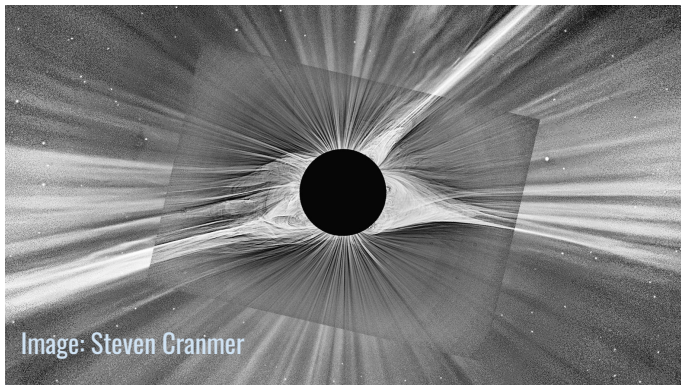
Stuff about solar wind turbulence

Luca Sorriso-Valvo

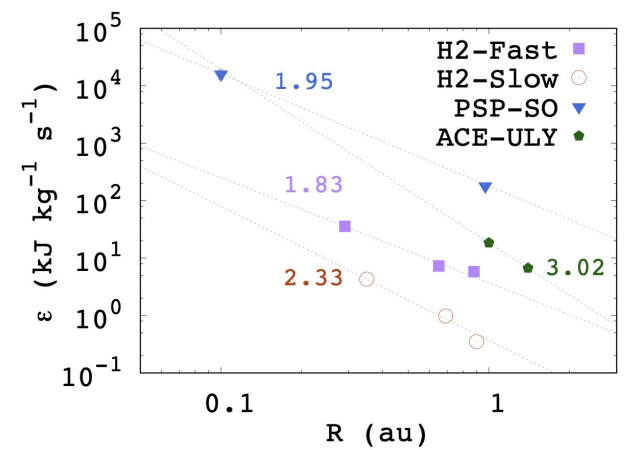
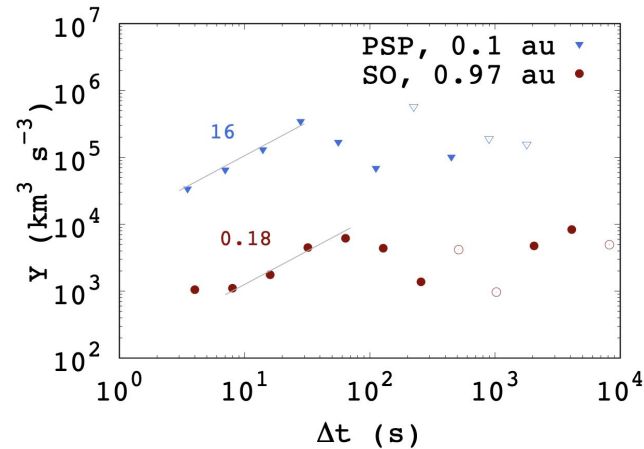
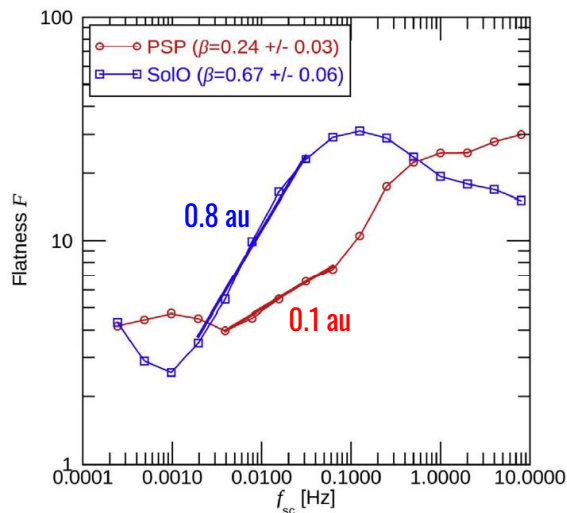
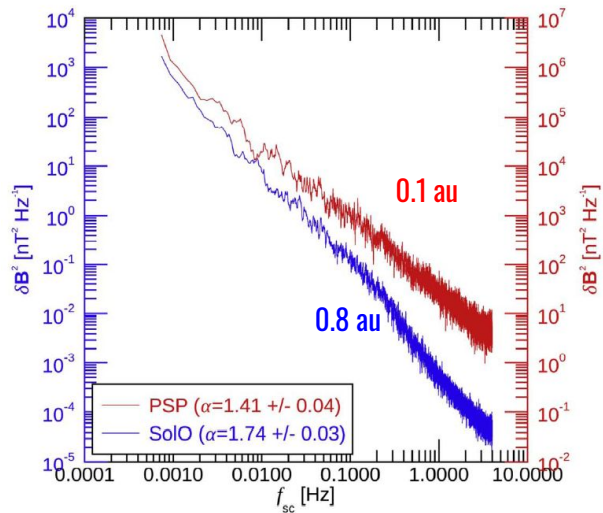
ISTP/CNR, Italy
KTH, Sweden

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Solar wind: expansion of the corona - radial expansion



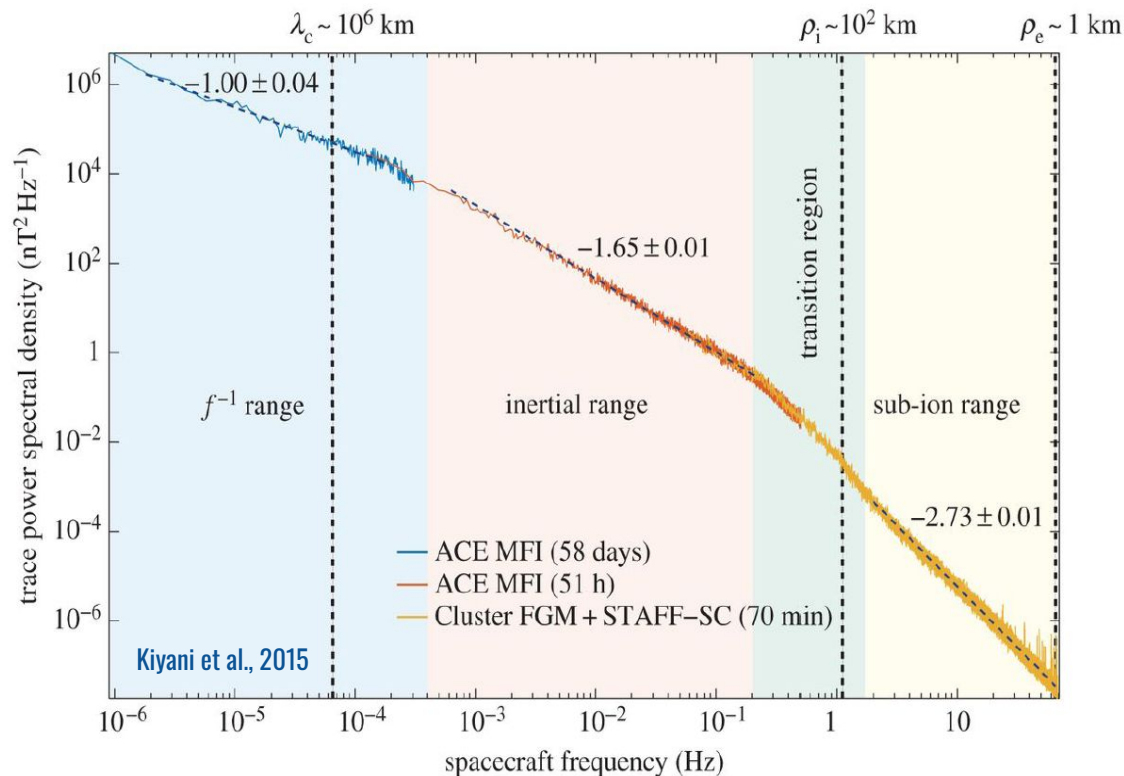
Solar wind: expansion of the corona - radial expansion



Solar wind typical magnetic field spectra

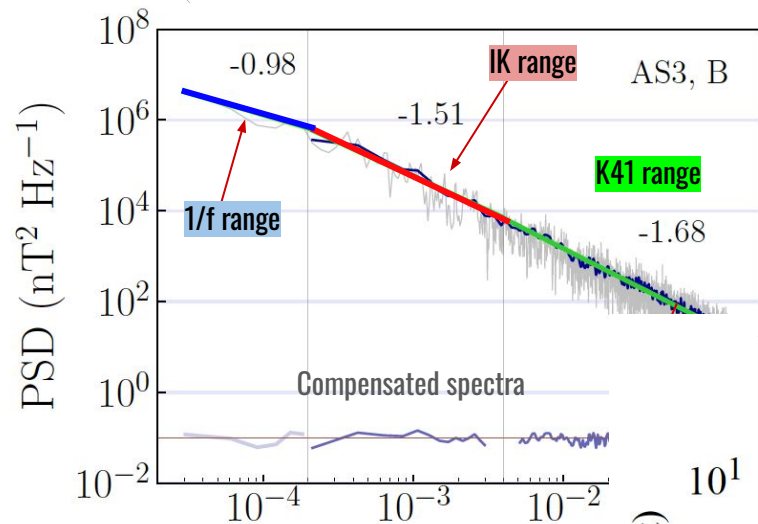
- **Large scales** (> hours)
Uncorrelated broadband forcing
(more evident in Alfvénic wind)
- **Small scales** (< seconds)
Kinetic physics steepens spectra
- **Mesoscales** (inertial range)
Kolmogorov-like spectra
(one single power-law → one single dynamics)

Bruno & Carbone, 2013

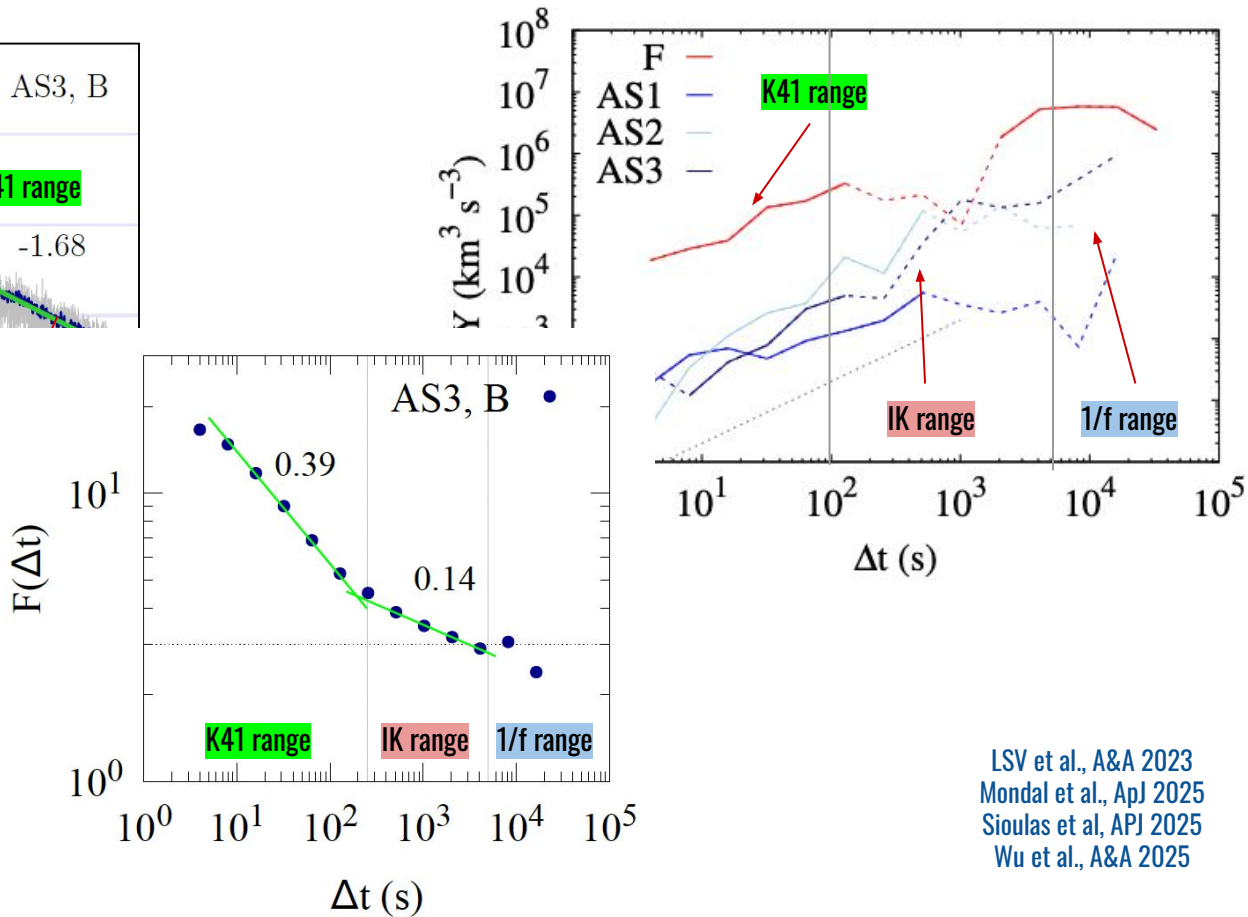




Double scaling in the inertial range: Solar Orbiter



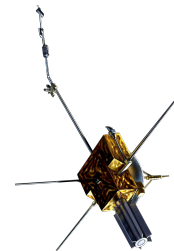
D'Amicis et al., A&A 2025



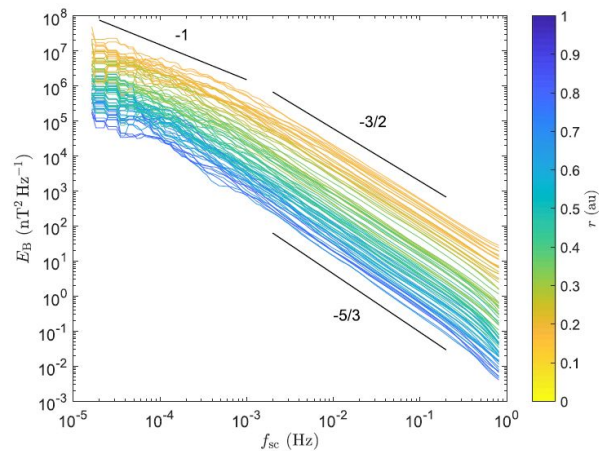
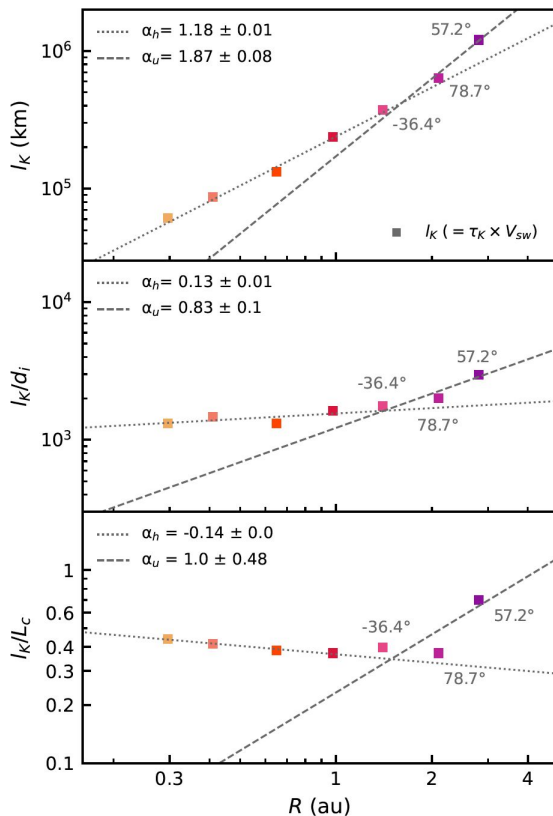
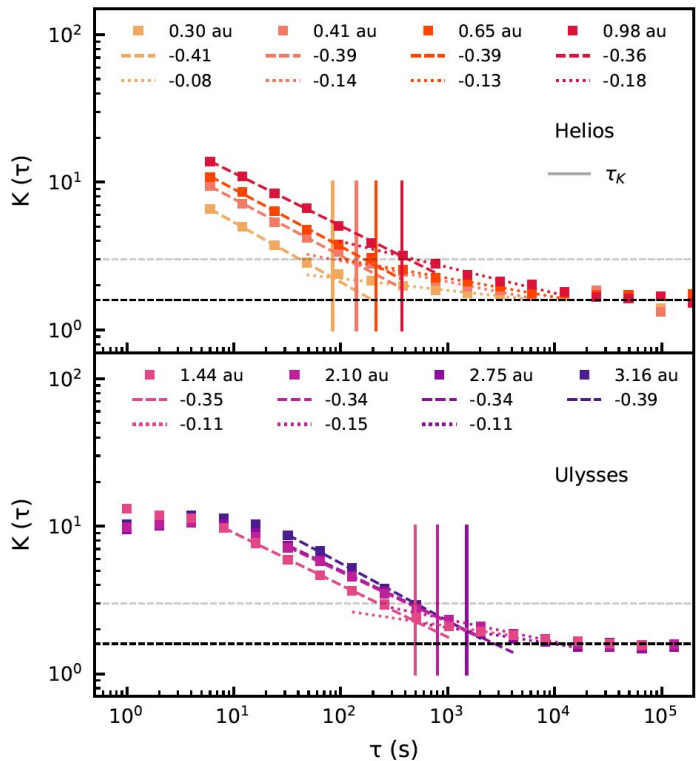
LSV et al., A&A 2023
 Mondal et al., ApJ 2025
 Sioulas et al., APJ 2025
 Wu et al., A&A 2025



Radial evolution of the break

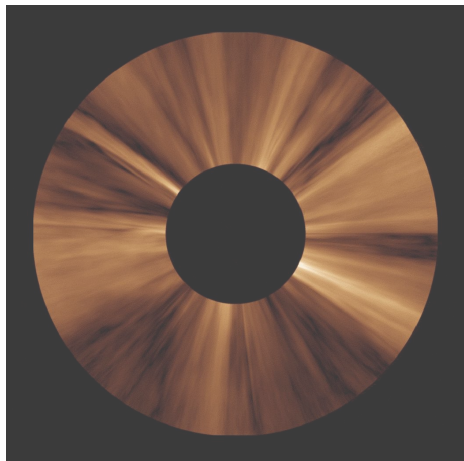


Mondal et al., ApJ 2025



Possible questions for plasma communities

Radial evolution of turbulence and energy budget in the expanding solar wind: comparison with astrophysical systems? any possible experiment in laboratory?



Double scaling:
any other turbulent systems with a regime transition at a well-defined characteristic scale?

