



Institute for Space Weather Sciences Colloquium

Wednesday, 30th of April 2025, 11:45am ET

ECE 202 & via Zoom (meeting ID: 917 2169 7568, password: isws)

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Sun-as-a-Star Flare Observations with High-Resolution Telescopes

Stellar flares cannot be spatially resolved, meaning we have to extract complex three-dimensional behavior from a one-dimensional disk-integrated spectral timeseries. Due to their proximity to Earth, solar flares can serve as a steppingstone for understanding their stellar counterparts, especially when using a Sun-as-a-star instrument in combination with spatially resolved observations. In this talk, I will discuss how high-resolution observations with a limited field-of-view can be converted into approximations of disk-integrated spectra using the newly developed Numerical Sun-as-a-Star Integrator (NESSI). Our findings suggest common patterns in the disk-integrated spectra between flares of different strengths and locations that can be used to better interpret stellar flares without resolved context.



Dr. Alex Pietrow is currently a researcher at Leibniz Institute for Astrophysics Potsdam, Germany. He received a MS in astronomy and instrumentation at Leiden University, Netherlands, in 2017. Then he moved to Sweden where he received a PhD at Stockholm University in solar physics in 2022. Since then, Dr. Pietrow has done a postdoc at the Institute for Astrophysics in Potsdam and a postdoc at KU Leuven, Belgium. Since last month, he is on a personal research grant back in Potsdam looking into chromospheric flare spectra.