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On Filamentation and Anti-Filamentation of Auroral Arcs

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Observations of the development of small-scale structures in aurorae are not uncommon. However, their appearance and cause are not well understood. One suggestion is that arc splitting is caused by inertial Alfven waves.

In this presentation a novel method to use multi-monochromatic optical observations to estimate the characteristics of the precipitating electrons in aurora with small-scale structures. This method is applied to data from the Auroral Structure and Kinetics (ASK) instrument from 2 event to test the predictions of spatio-temporal variations of electron energies and fluxes that can be derived from the intertial Alfven-wave hypothesis.