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**Correlative data studies in NSTX: Studies of magnetic topology with the motional Stark effect diagnostic** DAVID NEWBY JR., Drew University, ELIZABETH FOLEY, Nova Photonics, Inc, FRED LEVINTON, Nova Photonics, Inc. — The motional Stark effect diagnostic has been implemented to measure the magnetic field pitch angle in the National Spherical Torus Experiment (NSTX). By measuring the polarization of H-alpha emission from the system's neutral beam injectors, it is possible to gather time-resolved data and observe the evolution of the pitch angle over the duration of a plasma discharge. This data facilitates inquiry into magnetic topology changes, including reconnection events that may be occurring. Understanding magnetic reconnection is vital to eventually achieving a stable burning plasma, as well as being of interest in space and astrophysical phenomena. Here, IDL is used to correlate data from the pitch angle and other diagnostics to gain insight into instabilities and reconnection events that occur within NSTX. Such insights are presented with illustrative examples of data.

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