

Abstract Submitted
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Superresolution algorithm for turbulence investigations¹ D. BLOCK, I. TELIBAN, A. PIEL, Christian-Albrechts-University, D-24098 Kiel, Germany, V. NAULIN, Riso National Laboratory, Danmark — In general, spatio-temporally high resolved data is required to investigate processes in plasma turbulence. For most diagnostics, however, the maximum spatial resolution is limited by probe dimensions and constraints on probe array construction. To overcome limitations in spatial resolution this contribution describes a superresolution algorithm which uses the high temporal resolution of a multi-probe system to enhance the spatial resolution. The performance of the algorithm is benchmarked with synthetic data, data from plasma turbulence simulations and experimental data obtained from a Langmuir probe array with 64 probes. Significant improvements in amplitude, trajectory and shape of individual coherent structures in a turbulent system are observed.

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