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Coherent structure identification and tracking in turbulent jets<sup>1</sup> JON E. SCOUTEN, MICHAEL SCHLEGEL, BERND R. NOACK, Berlin University of Technology, Germany, ELMAR GRÖSCHEL, WOLFGANG SCHRÖDER, RWTH Aachen University, Germany, PIERRE COMTE, Université de Poitiers, France — A pattern recognition algorithm is proposed to identify and track spatiotemporal regions of collective laminar, vortical and helical motion. This algorithm is applied to turbulent jet data at Re = 3600 including incompressible and Ma = 0.9 flow. Thus, mechanisms of mixing and noise production are clarified in the most active area of the potential core breakdown employing coherent structure analysis. Correlations are identified between vortex sound sources and coherent structure dynamics.

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