POD and Fourier analysis of composite-field-of-view PIV applied to the far turbulent axisymmetric jet: Part II MAJA WÄNSTRÖM, WILLIAM K. GEORGE, Chalmers University of Technology, KNUD ERIK MEYER, Technical University of Denmark — This paper concerns the processing and results of data acquired from 30 to 100 diameters in a far turbulent air jet using a composite-field-of-view PIV. The Reynolds number of the flow was 20,000 based on the nozzle exit diameter which was 1 cm. Following [1], the snapshots for the entire field were first mapped into similarity coordinates, $\eta = r/\delta_{1/2}(x)$ and $\xi = \ln[(x-x_o)/D]$. Then the mapped field was decomposed using the classical POD in η and Fourier analysis in the new homogeneous coordinate ξ. The streamwise extent of the field was chosen to minimize window effects on the Fourier analysis and the lateral extent to insure capture of the energy by the POD. The fields were then reconstructed using partial decompositions in the manner first proposed by [2].
1. Ewing, D. et al. **J. Fluid Mech., 577**, 309-330, 2007.
2. Elteyeb, et al. **Bull. Am. Phys. Soc., 48**, 10, p. 53, 2003.

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