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Visualizing helium II counterflow turbulence around a cylinder[1]
TYMOFIY CHAGOVETS, STEVEN VAN SCIVER, National High Magnetic Field Laboratory — We report an experimental investigation of counterflow He II around a cylinder, thermally induced through vertical channels using an optical method of flow visualization. Previous studies using particle image velocimetry (PIV) and polymer microspheres as tracers demonstrated large scale turbulent eddies both upstream (as measured by the normal fluid flow direction) and downstream of the cylinder. An interpretation of this effect requires more detailed analysis of interaction of particles with normal fluid component and quantized vortex lines. Our recent experiments using solid hydrogen particles and the particle tracking technique (PTV) will be analyzed and results will be compared with the previous experiments. In this context, recent progress in our study of the observed large scale vortex structures in helium II counterflow will be discussed.

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