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Studying Vortex Dynamics of Rotating Convection with High-resolution PIV Measurement[1] HAO FU, Nanjing University Chinese Academy of Sciences, SHIWEI SUN, YU WANG, BOWEN ZHOU, YUAN WANG, Nanjing University — A novel experimental setup for studying vortex dynamics in rotating Rayleigh-Benard convection has been made in School of Atmospheric Sciences, Nanjing University. With water as the working fluid, three lasers with different frequencies and the corresponding three CCDs have been placed to complete 2D2C (two dimensions, two components) PIV measurement. The lasers are fixed on two crossing guiding ways and can move up and down to scan the flow field. An algorithm has been made to reconstruct 3D velocity field based on multiple 2D2C PIV data. This time, we are going to present the details of this new machine and algorithm, as well as some scientific understanding of vortex dynamics owing to this high-resolution velocity measurement system.

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