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2019 MRV Challenge: Hanyang University and Korea Basic Science Institute Results. SIMON SONG, MUHAMMAD HAFIDZ ARIFFUDIN, DON-GWAN AN, CHAEHYUK IM, Hanyang University, SUKHOON OH, Korea Basic Science Institute — This presentation is part of the 2019 MRV Challenge, and represents the results of a combined team from Hanyang Univ. and KBSI. Four MRI research groups are supposed to make measurements in the same apparatus comprising a square cross section U-bend with a tight radius that will produce a highly three-dimensional flow field with turbulent flow separation. An inlet boundary layer trip marks the common coordinate origin of the flow in the channel. The apparatus being transferred between the research labs includes detailed flow conditioning to ensure that variations in supply and exit plumbing will not disrupt the test section flow. The test was conducted at a turbulent Reynolds number of 15,000 based on the hydraulic diameter. The presentation will focus on the methodology used including the MRI hardware and facility, coil selection, magnetic field strength, scan parameters like number of scans and individual scan duration, software sequence details, as well as post-processing and filtering techniques. In addition, details of the flow at several locations will be presented, along with estimates of uncertainty for each velocity component. Finally, an estimate of experimental effort – comprised of number of personnel involved and hours, costs, and other factors will be provided.

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