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Characterization of a custom-built RF coil for a high-resolution phase-contrast magnetic resonance velocimeter[1] BYUNGKUEN YANG, Hanyang University, JEE-HYUN CHO, Korea Advanced Institute of Science and Technology, SIMON SONG, Hanyang University — For the use of clinical purpose magnetic resonance velocimeter (MRV) is a versatile flow visualization technique in that it allows opaque flow, complex geometry, no use of tracer particles and facile fast non-invasive measurements of 3 dimensional and 3 component velocity vectors. However, the spatial resolution of a commercial MR machine is lower than optics-based techniques like PIV. On the other hand, the use of MRV for clinical purposes like cardiovascular flow visualization requires accurate measurements or estimations on wall shear stress (WSS) with a high spatial resolution. We developed a custom-built solenoid RF coil for phase-contrast (PC) MRV to improve its resolution. We compared signal-to-noise ratio, WSS estimations, partial volume effects near wall between the custom RF coil and a commercial coil. Also, a Hagen-Poiseuille flow was analyzed with the custom RF coil.

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