

# Ultrasonic velocimetry using integrated time of flight

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Most common techniques in flow diagnostics rely on the presence of reflectors in the fluid, either for light or acoustic waves. These methods fail to operate when e.g. centrifugal or gravitational acceleration becomes significant, leading to a rarefaction of scatterers in the fluid, as for instance in rapidly rotating fluids. Such conditions will occur in the upcoming liquid sodium experiment SpiNaCH, currently under construction at ETH Zurich. In this study we present a novel technique based on the time of flight principle to perform velocity measurements in the absence of scattering particles.

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