

Abstract Submitted
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Detecting obstacles in a liquid metal flow with a small permanent magnet¹ CHRISTIANE HEINICKE, Ilmenau University of Technology, AUNI KUNDU, University of Arizona — Flow measurement remains challenging for liquids that are opaque and chemically aggressive. Several contact-free measurement techniques have been developed that rely on the electrical conductivity of the liquid and the resulting interaction of the liquid with external magnetic fields. One of these electromagnetic techniques is the so-called Lorentz Force Velocimetry. Its advantage over other techniques is the possibility to perform measurements with a spatial resolution of the flow field. So far, however, it has remained unclear how deep the influence of the magnetic field reaches into the liquid. We will present a liquid metal experiment whose flow structure is altered by obstacles at variable distance from the measurement device. From measurements using Lorentz Force Velocimetry we can deduce the position of objects in the liquid metal that are invisible from outside.

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