

Abstract Submitted  
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**High resolved velocity measurements using Laser Cantilever Anemometry** JAROSLAW PUCZYLOWSKI, MICHAEL HLLING, JOACHIM PEINKE, University of Oldenburg — We have developed a new anemometer, namely the 2d-LCA (2d-Laser-Cantilever-Anemometer), that is capable of performing high resolved velocity measurements in fluids. The anemometer uses a microstructured cantilever made of silicon as a sensing element. The specific shape and the small dimensions (about 150m) of the cantilever allow for precise measurements of two velocity component at a temporal resolution of about 150kHz. The angular acceptance range is 180in total. The 2d-LCA is a simple to use alternative to x-wires and can be used in many areas of operation including measurements in liquids or in particle-laden flows. Unlike hot-wires, the resolution power of the 2d-LCA does not decrease with increasing flow velocity, making it particularly suitable for measurements in high-speed flows. In the recent past new cantilever designs were implemented with the goal to further improve the angular resolution and increase the stability. In addition, we have designed more robust cantilevers for measurements in rough environments such as offshore areas. Successful comparative measurements with hot-wires have been carried out in order to assess the performance of the 2d-LCA.

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