

Abstract Submitted
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The Design of Surface Mounted Transducer Arrays for Pressure Field Mapping in Flow Control Applications MARK POTTER, JONATHAN MORRISON, Imperial College London, GRAHAM ARTHUR, Rutherford Appleton Laboratory — Advances in the field of flow control are leading to increasing demands being placed on pressure based instrumentation systems, in terms of sensitivity and spatial resolution. This work is aimed at accurately mapping pressure fields, in terms of both pressure and pressure-gradient fluctuations at the wall, to provide essential information for closed-loop flow control. To achieve this mapping, a capacitor-based sensor has been developed and constructed using micro fabrication techniques. Using these techniques, an array of robust surface-mounted transducers, with a sensing diameter of $800\mu\text{m}$, has been developed with the aim of further size reductions in the future. Presented alongside the structure and fabrication methods for this design of pressure sensor is a description of the electronic systems used to determine the changes in the transducer capacitance, required for accurate sensing, along with preliminary results from a transducer array.

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