



Polymeric Flow-Sensor

HSG-IMIT (Villingen)

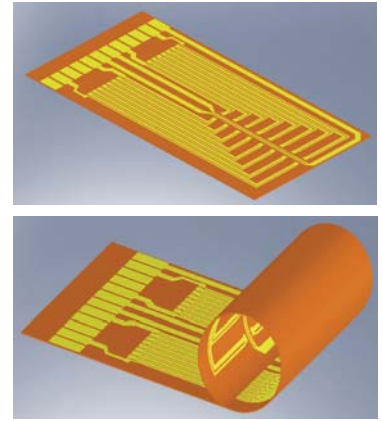


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BACKGROUND and BASICS

At HSG-IMIT novel Packaging-Methods for fabrication of cost-efficient MEMS are developed.

- The basis: flexible polymeric substrates.
- On these substrates further functional layers are processed.
- Depending on the product, different processes are applicable:
 - MEMS processes
 - Printing techniques (e.g. Ink-Jet, screen-printing)
- After processing the different layers the device is packaged by rolling in.

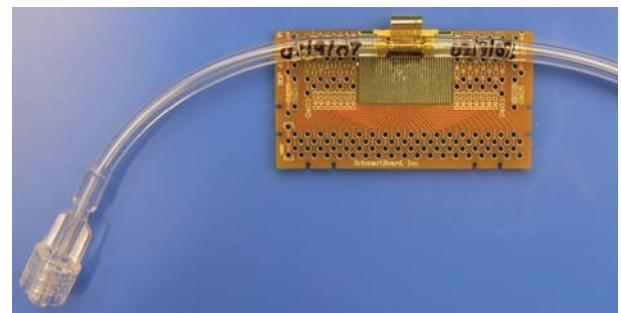
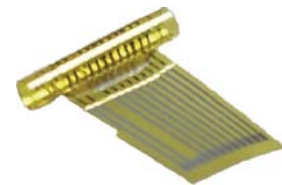


CONCEPT and SOLUTION

The rolling packaging-method is predestinated for building fluidic devices like flow-sensors:

- Substrate: polymer-foil (e.g. polyimid)
- Measuring principle: thermal anemometry (layer-generation with e.g. PVD-methods)
- Formation of the fluidic channel by rolling in the planar preprocessed foil
- Applying customized interfaces with e.g. injection molding

Due to the applied materials and the possibility to produce these sensors on large area substrates they are applicable for disposables.



STATUS and OUTLOOK

The first layout of the polymeric flow-sensor was realized with thermal resistors:

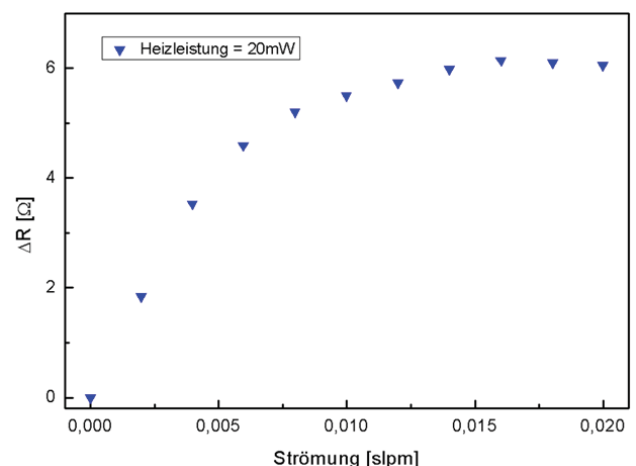
- First measurements demonstrated functionality
- Cross effect: pressure-dependence of the resistors
- Nonsatisfying Sensitivity

The second design will be realized with thermopiles:

- Higher Sensitivity
- Necessary heating power will be reduced

We are looking for partners

- with potential application of this sensor,
- who are interested in supporting our R&D



Contact

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