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<p align="center">Integrated Electronics Department</p>	<p align="center">Institute of Micro Production Technology</p>
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### **BRIEF DESCRIPTION OF THE UNIT / RESEARCH GROUP**

The main focus of the research activities of the Institute for Micro Production Technology is the design and manufacture of—especially based on magnetic effects—actuators and sensors (MEMS—Micro Electro Mechanical Systems), mechanical processing and characterization of MEMS and MEMS materials and the determination and adjustment of tribological properties. Development activities range from magnetic field sensors to measurement systems and micro motors, actuators to manipulation of micro-optical lens systems, and to biomedical applications.

Available to the scientific and technical staff of the IMPT for research activities is a class ISO 5 clean room, which, with its extensive facilities, allows for the implementation of microsystem processes for the production and analysis of MEMS and reliability studies. In addition, the IMPT has access to research laboratories, with which the mechanical processing and metrological characterization of microtechnical systems and materials are made possible. Therefore, IMPT is well integrated into the comprehensive facilities of the Hannover Center for Production Technology (PZH) and strengthens the research potential of the PZH in the area of micro production technology.

The main research areas of the Integrated Electronics Department are focused on microelectronics circuits design and integrated circuits technology with focus on applications in wireless telecommunications systems, optoelectronics and functional electronics. The

Department is well equipped by measurement instruments including probe stations, network and spectrum analyzers. An access to Atomic Layer Deposition reactor SUNALE R-150 allows the realization of a number of technological operations devoted to deposition of thin but very smooth films.

#### **WHAT WE OFFER / PROJECT DESCRIPTION**

The goal of the project is to evaluate the possibility for the development of high integrated systems like the combination of an inductance and an IC. For the fabrication of the inductance a high permeable soft magnetic material, like CoFe, is necessary. For the realization of a real small package of the inductance and the IC it is necessary to create a magnetic core with a helical coil. The advantage of this approach is a system with a low height and therefore the influence of the magnetic field to the IC can be investigated in a good way. By varying the distance between the magnetic component and the IC different magnetic field strengths can be investigated. The field strength could be measured using a hall sensor.

#### **KEYWORDS**

New packaging technologies, magnetic components

#### **COLLABORATIONS SOUGHT**

Companies which are interested in a combination of microelectronic devices with magnetic components

The cooperation has been suspended since 2016.