Scientists develop paper-based sensors

Auf einen Blick

- ☑ Doctoral thesis on paper-based anisotropic magneto-resistive sensors
- ☑ U.S. exchange students on the IMPT team
- ☑ Paper as a material for additive manufacturing and for sustainable and low-cost production

19. 2016

IMPT | Can new ideas sketched out on a sheet of paper also be produced on paper? Is it possible to integrate sensors for computers or smartphones into a sheet of paper? Scientists of the Institute of Micro Production Technology (IMPT) are working on this vision of the future.

Paper is a sustainable, low-cost and abundant material. But is it suited for the production of technical devices? "Yes", says Meriem Akin of IMPT. Within the scope of her doctoral thesis, she developed a paper-based sensor and was supported by young academics from the U.S.A.: This year, Autumn Pratt and Jenny Blackburn came over as visiting scientists for short research periods at IMPT.

The so-called anisotropic magneto-resistive (AMR) sensor placed in a magnetic field is able to sense rotary motion. For example, AMR sensors are capable of sensing whether a smartphone is held vertically or horizontally. Sensors are usually produced on semiconductor material, such as silicon substrate, which is five times as thick as a sheet of paper. So the unconventional material could help to produce even thinner sensors – and to make use of previously high-cost technologies at a more favourable price.

In the first place, however, paper would be able to provide for a sustainable production technology, since cellulose is a renewable resource. "Paper can be used for a lot more than just for disposable cups and newspapers", says Meriem Akin.

by Susann Reichert

in
E-Mail: akin@impt.uni-hannover.de
Tel.:

Webseite: