



## **CDS RESEARCH CENTER DYNAMIC SYSTEMS SYSTEMS ENGINEERING**

### **Engineers revolutionise molecular microscopes**

28.06.2019 - Engineers at Otto von Guericke University Magdeburg, in cooperation with colleagues at Forschungszentrum Jülich have developed a method for measuring the electrical potentials of molecules and molecular surfaces with previous unattained precision and speed. Using so-called scanning quantum dot microscopy, they have succeeded for the first time producing high-resolution maps of molecular electrical potentials, i.e. the electrical fields occurring in the environment of all matter within minutes. The research results were published in the internationally renowned journal *Nature Materials* (<https://www.nature.com/articles/s41563-019-0382-8>).

Prof. Rolf Findeisen, together with his doctoral student Michael Maiworm, developed a controller, an algorithm that controls the scanning process, for the novel microscopy method. This makes it possible to precisely measure the potentials of molecules with a resolution in just a few minutes, which has been very tedious up to now. "With the new controller, we can now easily scan the entire surface of a molecule just like with a normal atomic force microscope," says Christian Wagner from Forschungszentrum Jülich. This enables high-resolution images of the potential that previously seemed unattainable.

You can find the complete article [here](#)

(<https://www.ovgu.de/unimagdeburg/en/University/In+Profile/Key+Profile+Areas/Research/Engineers+of+the+University+of+Magdeburg+revolutionize+molecular+microscopy-p-75618.html>).

Contact Prof. Dr.-Ing. Findeisen

#### **Otto von Guericke University Magdeburg**

Faculty of Electrical Engineering and Information  
Technology


Institute for Automation Engineering (IFAT)

Universitätsplatz 2

39106 Magdeburg

Prof. Dr.-Ing. Rolf Findeisen

Tel.: +49 391 67-58708

 [rolf.findeisen@ovgu.de](mailto:rolf.findeisen@ovgu.de)

[> Prof. Dr.-Ing. Rolf Findeisen](#)