



**Fraunhofer** Einrichtung  
Elektronische  
Nanosysteme

nano tech 2009 - Press Release

## **Fraunhofer Research Institution for Electronic Nanosystems ENAS**

Fraunhofer ENAS presents a printed battery at the nano tech exhibition in Tokyo (02.02.2009)

Fraunhofer ENAS will present innovative developments of printed functionalities and nanotechnologies at the international nanotechnology exhibition and conference nano tech 2009 in Tokyo. From February 18th till 20th, 2009, the research institution shows a new version of a printed battery and examples of the developments in nanoelectronics as well as MEMS / NEMS at booth no C-21 in exhibition hall 4 of the Tokyo Big Sight.

The printed battery is an innovation developed by the department Printed Functionalities of the Fraunhofer ENAS. Series connections of printed batteries are possible for the first time, thus integer multiples of the nominal voltage of 1.5 V are realized (3 V, 4.5 V, 6 V). The battery system is zinc manganese which might be regarded as environmentally friendly. Parts of the batteries' components may even be composed. By using high efficient printing technologies and the adaptation of the used materials, the production yield reaches almost 100 %.

The printed batteries are especially suited for thin and flexible products. These might be e.g. intelligent chip and sensor cards, medical patches and plasters for transdermal medication and vital signs monitoring, as well as lab on chip analyses. The combination with other flexible or thin modules, at least, has to be accentuated. Hereby flexible displays and solar cells may be manufactured in the same manner of preparation and combined where required.

Currently field tests are running for different applications. The first application being ready for series production is expected in 4th quarter of 2009. As an advancement the development of secondary batteries is planned, which may be used as traction batteries and for energy harvesting systems.

Other innovations presented in Tokyo by the Fraunhofer ENAS are a novel Fabry-Perot interferometer, developments in the field of nanoelectronics and waferbonding as well as services for testing the reliability of nanosystems.

Prof. Dr. Reinhard R. Baumann, leader of Fraunhofer ENAS department Printed Functionalities, will speak about 'Printed Smart Objects enter the Internet of Things' at the 1st Printable Electronics Symposium in Tokyo on February 19th, 2009. In addition, Dr. Maik Wiemer from Fraunhofer ENAS will give a presentation on low temperature bonding of micro components within the Seeds & Needs Seminar of nano tech 2009.

More information: <http://www.enas.fraunhofer.de> ([www.enas.fraunhofer.de](http://www.enas.fraunhofer.de))