Micro and Nano Scale NMR: Technologies and Systems

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DESCRIPTION

This must-have book is the first self-contained summary of recent developments in the field of microscale nuclear magnetic resonance hardware, covering the entire technology from miniaturized detectors, the signal processing chain, and detection sequences. Chapters cover the latest advances in interventional NMR and implantable NMR sensors, as well as in using CMOS technology to manufacture miniaturized, highly scalable NMR detectors for NMR microscopy and high-throughput arrays of NMR spectroscopy detectors.

ABOUT THE AUTHOR

Jens Anders obtained his PhD from the Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, in 2011. He then joined the Institute of Microelectronics at the University of Ulm, Germany, first as a group leader and since 2013 as assistant professor. Prof. Anders is the recipient of several awards including the E.ON Future Award 2007, the VDE ITG ISS Study Award 2008 and the VDE Outstanding Publication award 2012. His main research interests include electronics for biomedical and materials science applications, mixed-signal circuit design, and the modeling of nonlinear circuits and systems in the absence as well as in the presence of noise.

Professor Anders has authored more than 90 scientific publications.
Jan Korvink obtained his PhD from the ETH in Zürich, Switzerland, in 1993. In 1997 he moved to the Albert Ludwig University in Freiburg, Germany, where for 18 years he was professor for microsystems engineering. From 2007 to 2013 he was a director of the Freiburg Institute for Advanced Studies. Since April 2015 he is Professor and director of the Institute of Microstructure Technology at the Karlsruhe Institute of Technology. His research interests cover the development of ultra low cost micromanufacturing methods, microsystem applications in the area of magnetic resonance imaging and spectroscopy, and the design and simulation of micro- and nano-systems. He is a recipient of the European Research Council's Advanced Grant for the development of an NMR metabolomic analyser for the nematode C. elegans. He has also been awarded a Red Dot Design Concept Prize in the area of NMR hardware.

Professor Korvink has authored more than 300 scientific publications, and was a founding editor of this book series.