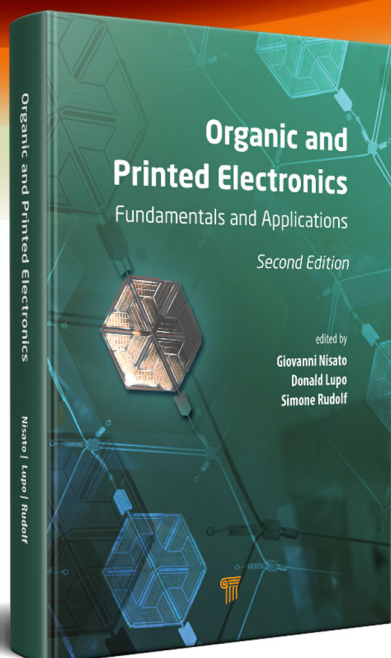


Organic and Printed Electronics

Fundamentals and Applications

Second Edition



edited by
Giovanni Nisato, Donald Lupo, Simone Rudolf

The field of organic and printed electronics (OPE) is well established in terms of academic, scientific, and technological research. The mass applications, ranging from displays to printed sensors to photovoltaics, are growing and becoming all the more relevant today. This book provides a comprehensive introduction to organic flexible and printed electronics, their fundamental aspects, core technologies, and applications and is authored by international expert practitioners in the field. The book is a key reference resource specially designed to address students in their final undergraduate or beginning graduate studies as well as engineers interested in approaching this field from an application perspective. In this second edition of the book, almost all chapters have been revised and updated. Among others, the second edition includes new chapters on smart textiles and on photovoltaics. The chapter on characterization techniques has been expanded and includes new references to standards. The contents on circular economy, innovation management, roadmapping chapters have been largely augmented and updated. Finally, the chapter on hands-on experiments includes new set-ups on dye solar cells and supercapacitors.

About the Editors

Giovanni Nisato is an independent consultant, enabling companies' innovation strategies. After his PhD in physics and postdoctoral work in nanomaterials, he started his journey in flexible and printed electronics in 1999 at the Philips Research Labs in the Netherlands. He subsequently joined the Swiss Center for Micro Technology and Electronics (CSEM) in 2009, leading and managing their OPE program as well as initiating and managing EU-level research projects. His professional background spans the display, photovoltaics, and healthcare domains. As a member of the Organic and Electronics Association (OE-A), he contributed actively to the roadmapping and encapsulation working groups and served on its board. He is co-author of over 30 peer reviewed publications and 35 patent applications.

Donald Lupo joined the Department of Electronics and Communications Engineering at Tampere University of Technology (now Tampere University, Faculty of Information Technology and Communication Sciences) as professor for electronic materials in 2010 after a diverse career in industrial research and development in functional materials for photonics and electronics. He obtained his PhD in physical chemistry at Indiana University-Bloomington, USA, in 1984 and spent the next 24 years working in chemical, electronic, and display industries and as an independent consultant, working for and with companies such as Hoechst AG, Sony Europe, N'Tera, Samsung, UPM Kymmene, and Merck. During his industrial career, he led ground-breaking work in organic nonlinear optics, polymer LEDs, solid-state dye solar cells and paper-like displays. He has authored over 100 journal articles and conference proceedings and is inventor in over 40 patents and applications.

Simone Rudolf, née Ganz, is a development engineer at Heraeus Noblelight GmbH, Germany, and works on process and application development for infrared heating processes. She studied chemistry and management at Ulm University, Germany, and completed her Diplom (master's equivalent) in battery technologies at VARTA Microbattery GmbH, Germany. Subsequently, she joined the Functional Printing Group at the Institute of Printing Science and Technology, Technische Universität Darmstadt, Germany, where she obtained her PhD. Her research was focused on printing techniques, especially gravure and flexography, for organic field-effect transistors. As former co-spokesperson of the OEA's Working Group Education, she furthered academic education within the field of organic electronics.

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