

# Preface

Organic electronics is a scientific and technological field that has witnessed an enormous world-wide effort both in basic scientific research as well as in industrial development within the last decades. It is becoming increasingly clear that, if devices based on organic materials are ever going to have a significant relevance beyond being a cheap replacement for inorganic semiconductors, there will be a need to understand interface formation, film growth and functionality. A control of these aspects will allow the realisation of totally new device concepts exploiting the vast flexibility inherent in organic chemistry. The field of device-relevant “semiconducting” organic materials has many parallels to that of inorganic semiconductors. However, the versatility of organic molecules comes at the cost of higher complexity of the materials. This rules out a 1:1 transfer of concepts established within inorganic semiconductor research to the world of organics, and makes work on organic semiconductors particularly challenging.

On a world-wide scale, investigations of organic thin films focus on three main areas with different aims and with a fruitful mixture of applied and basic research: (1) the development and production of devices, (2) thin film characterization and more recently, after recognizing the importance of molecular level control (3) surface and interface science. Linking these branches together creates new synergies and has led to a significant advance in the field of organic semiconductors. Eventually it will result in the development of the necessary tools for tuning device properties on a nanoscopic level.

In the last 10 to 15 years a large amount of investigations of devices have been performed with a big range of active organic materials. This work has mapped out the classes of materials that prove useful for single molecule, oligomeric/molecular films and plastic electronics. In this symposium we focused on oligomeric/molecular films, because the control of molecular structures and interfaces provides unprecedentedly highly defined systems. This in turn allows one to study basic physics and at the same time enables one to find the important parameters necessary to improve organic devices.

The E-MRS symposium conceived to bring together the leading groups, which work in the field of growth and characterisation of organic films and devices and focus them on the fabrication and characterisation of highly ordered functional organic films. The wide range of expertise of the contributing groups allowed the combination of different methodologies and aspects of physics, chemistry, and materials science for the design and understanding of well-defined organic structures.

In total we received 148 contributions to the symposium in the form of invited talks, oral presentations and posters. Out of them the reviewers selected a representative amount of papers to be published in the proceedings. The main topics discussed at the symposium are reflected in the headlines of the chapters in the proceedings. Introductory review papers based on invited talks given at the symposium are followed by contributed papers. The highlights of the oral and poster presentations contributing to the same topic are summarized in the same chapter.

The editors would like to thank the sponsors of the E-MRS symposium, especially the ‘Fonds der Chemischen Industrie’.

In technical finishing the book we would like to thank Ms. Zora Milde for her extraordinary help in mastering the handling of all the electronic documents.

Sønderborg, Linz, Paris, Oldenburg  
January 2009

H.-G. Rubahn  
H. Sitter  
G. Horowitz  
K. Al-Shamery

<http://www.springer.com/978-3-540-95929-8>

Interface Controlled Organic Thin Films

Rubahn, H.-G.; Sitter, H.; Horowitz, G.; Al-Shamery, K.  
(Eds.)

2009, XII, 230 p. 122 illus., 8 illus. in color., Hardcover

ISBN: 978-3-540-95929-8