
Preface to Discussion on Electronics with molecular materials: from synthesis to device

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Preface

This Discussion Meeting draws together for the first time an interdisciplinary group of scientists who have revolutionized the field of semiconductors. Although the potential of conducting organic materials had already been well appreciated for some time, the first real breakthrough with conjugated polymers came with the early experiments in the 1970s of Heeger, MacDiarmid and Shirakawa on the oxidative 'doping' of poly(acetylene) with halogens. With iodine the conductivity increased by seven orders of magnitude!

From that exciting discovery the field of 'synthetic metals' has accelerated in leaps and bounds. In this Discussion Meeting we have had the benefit of pioneering synthetic work from the groups of Grubbs, Feast and Müllen, fundamental studies on theoretical aspects from Brédas, considerable insight into spectroscopy (Bässler and Taliani) and polymer metal interfaces (Salaneck), and a comprehensive discussion on the optoelectronics and device physics of organic thin film semiconductors (Heeger and Garnier). Much of the early work on organic electroluminescence was pioneered in the laboratories of Tsutsui and Tang. A feature of this Meeting has been the relevance of organic materials to the displays industry. Liquid crystals are fundamental in current flat panel display applications (Raynes). However, commercial prospects with organic luminescent materials are being seriously examined by companies such as Philips (Staring) and Cambridge Display Technology (Pichler). The Meeting coincided with the end of a very successful ESPRIT Basic Research Programme on organic luminescence (funded by the Commission of the European Community (8013-LEDFOS)), which enabled the participating partners to summarize their achievements in that programme as well.

This volume contains a series of stimulating papers at the forefront of the field. The enthusiasm of a capacity audience is reflected in the vigorous discussion which took place after each lecture.

We thank the Royal Society Hook Committee for making this Meeting possible.

DONAL BRADLEY
RICHARD FRIEND
ANDREW HOLMES