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Introduction

Organic and perovskite materials and devices

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We would like to warmly welcome you to this special issue of *MRS Communications* on Organic and Perovskite Materials and Devices. This issue comprises contributions from collaborators, colleagues, and friends of Professor Alexander Zakhidov and celebrates his impact in the field of organic and perovskite technologies.

Alexander was regarded for his creative spirit and lively passion for science. An applied physicist, Alexander tackled both scientific and engineering challenges, looking to understand the fundamental dynamics of material systems while also facing the hurdles of their commercial implementation.

During his time as a postdoctoral researcher at Cornell University, Alexander published pioneering and high-impact work on orthogonal lithography for organic thin film processing. His scientific journey progressed from organic light-emitting diodes at Dresden University to patterned metal–organic microcavities as a group leader at Fraunhofer Center for Organic Materials and Electronic Devices Dresden. At Texas State University, his group specialized in organic and perovskite electronics. In this special issue, comprising original research and review articles, Alexander's research interests are well represented.

In the field of organic materials, Björn Lüssem et al. provide a review of processing methods for organic electrochemical transistors (OECTs), while Hans Kleemann et al. demonstrate a hybrid process that increases the uniformity and reliability of OECT integration. George Malliaras et al. showcase stable operation regimes for OECTs based on polythiophenes. Mingqian He and coauthor review the state-of-the-art in polymeric dielectrics for organic transistors, while Fabio Cicoira et al. demonstrate the effectiveness of using carbon nanotubes as electrodes in organic transistors. Malte Gather et al. increase the stability of an organic microcavity polariton laser through improved encapsulation. Karen Martirosyan et al. develop carbon-based nanocomposite yarns for a variety of applications.

In the field of perovskites, Jason Slinker et al. enable electrochemical impedance spectroscopy of perovskites by introducing a hydrofluoroether solvent toolkit that does not dissolve the perovskite. Sanjoy Paul et al. provide the characterization pathway to understand the recombination dynamics of photoinduced charge carriers in perovskite solar cells. Nicholas Rolston et al. process perovskite thin films with a polymeric additive which stabilizes the perovskite's photoactive phase through a beneficial compressive stress. Wilhelmus Geerts et al. demonstrate fabrication parameters for slot-die coating of mixed-halide perovskite films and their resulting performance in solar cells. (Some articles were in production at the time of this writing and may be published in a subsequent issue of *MRS Communications*.)

We hope this issue provides insight and outlook for the future of organic and perovskite materials and devices, in which Alexander has played such a large and impactful role.

Dante, Anvar, and Alexander Zakhidov