

Guest Editorial

Special Section From the Selected Extended Papers Presented at the CAD-TFT 2020

THIS Special Section follows from a selection of highly-rated, high impact technical papers presented at the 11th International Conference on Computer-Aided Design for Thin Film Transistor Technologies (CAD-TFT) 2020. The CAD-TFT 2020 was held as a virtual conference on November 10th and 11th, 2020 from the operations center at Tianjin, China. The pre-conference virtual presentations on November 9th, 2020 included six tutorials from internationally recognized experts in their technical fields as well as six posters from China, India, and Canada.

The CAD-TFT 2020 virtual conference featured eight Plenary talks by globally-recognized speakers from industry and academia, and 27 high-impact research papers from different countries in Asia, Europe, and Americas representing broad areas of thin film transistor (TFT) modeling and simulation, including material and process technology modeling; device technology and technology computer-aided design (TCAD); compact modeling; circuit design & simulation; and system design and applications integration.

In this special issue, three top-rated presented papers at the CAD-TFT 2020 that are technically extended by the authors according to IEEE publications policy and rigorously reviewed by the JOURNAL OF ELECTRON DEVICES SOCIETY (J-EDS) reviewers are published.

The *first paper*, “New Compact Modeling Solutions for Organic and Amorphous Oxide TFTs,” by Iñiguez *et al.* from Europe, presents a comprehensive review of different physical principles and mathematical formulations of the recent organic and amorphous oxide TFT compact models developed under the framework of the EU-funded DOMINO project. The authors discuss different approaches to develop analytical equations to model density of states (DOS), transport mechanisms, trapping/de-trapping, drain current, stress, capacitances, frequency dispersion, and noise for TFTs.

The *second paper*, “Complementary-Like Inverter Based on Organic-Inorganic Heterojunction Ambipolar Transistors on Flexible Substrate,” by Peng *et al.* from the Chinese Academy of Sciences in collaboration with the National Center for Nanoscience and Technology, Beijing, PRC, reports the fabrication of organic-inorganic heterojunction ambipolar transistors on flexible polyimide substrates for applications in

logic circuits. The authors demonstrated the feasibility of using photolithography for integration of flexible electronics.

The *final paper*, “Electrolyte-Gated Field Effect Transistors in Biological Sensing: A Survey of Electrolytes,” by Wang *et al.* from National Research Council, Canada, reviews the present state-of-the art research on electrolyte-gated field effect transistors (EGFETs) for biological sensing and highlights the strengths and challenges of high-performance electrolytes for EGFET biosensor applications as well as potential bio-sensing CAD platforms.

The editors sincerely thank the reviewers for carefully and meticulously reviewing each manuscript and its revised version within a short span of time. They would also like to thank the authors for their cooperation in submitting revised manuscripts in a shorter-than-normal timeframe and in documenting important research results to be made available to the wider research communities. The editors greatly appreciate the supporting work by Marlene James and the IEEE publishing operations. Finally, the editors enjoyed putting together this special issue. We hope that the readers will also enjoy it.

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