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Advances in Organic, Inorganic, and Organic/Inorganic Hybrid Composite Functional Materials Which Are High-Frequency and Low-Dielectric

Guest Editor:

Dr. Wenxin Fu
Institute of Chemistry, Chinese Academic of Sciences, Beijing 100190, China

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Message from the Guest Editor

Dear Colleagues,

With the rapid development of electronic information technologies, such as high-frequency communication, artificial intelligence, and cloud computing, various types of low-*k* materials have been adopted to avoid the signal capacitance delay, crosstalk, and increased power consumption caused by metal resistance and parasitic capacitance between lines and layers. For example, organosilicates (fluorinated silicon glass (FSG or SiOF) and organosilicate glass (SiCOH), etc.) have been widely used for low-k interlayer dielectrics in integrated circuits (IC) packaging. Additionally, certain kinds of polymers (such as poly(arylene ether), polyimide, parylene-N/F, polytetrafluoroethylene, benzocyclobutene-based polymer, etc.) are commercially available for spin-on dielectric applications.

Aside from material innovations, advanced chemical and physical structures of organic, inorganic, and hybrid low-k materials should be proposed to meet operation requirements, including outstanding mechanical property, good thermal stability, low shrinkage rate, low expansion coefficient, low water absorption, and good processability and surface smoothness.

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Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Message from the Editor-in-Chief

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Contact Us

Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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