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Advances in Phase Change Materials: Characterization, Design and Applications

Guest Editor:

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Message from the Guest Editor

Phase change phenomena exist in many natural materials, such as metals, polymers and oxides, etc. Phase change materials have been widely researched in terms of energy storage, thermal management, smart building, and information storage. Especially in the intelligent photonics fields, various new types of photonic devices have materialized by taking advantage of phase change materials in rapid reversible switching, large variation range of optical dielectric function, and nonvolatile and long-term retention. These devices usually possess reprogrammable, reconfigurable, rewriteable, tunable, and switchable properties.

This volume aims to collect the latest developments for scientific and technological advances of the PCMs so as to provide an exhaustive overview of the state of the art and future trends. Topics will include but not be limited to:

- Synthesis and doping engineering;
- Calculation and modeling of transition dynamics;
- New structures, e.g., super-lattice and heterostructure;
- Fundamental and device physics;
- Micro- and nanoscale phase-change devices;
- Metal-insulator transition in VO₂;
- Phase-change memory.



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Message from the Editor-in-Chief

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