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Nanoarchitectonics of the Fourth Fundamental Electronic Component: Memristor, Meminductor and Memcapacitor

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Message from the Collection Editors

The unique resistance tunability of memristor has received great attention due to its potential application for data storage. However, it is not only possible to tune the memristor's resistivity (R) but also its inductance (I) and capacitance (C), and thus, it is also called the meminductor and the memcapacitor, respectively. Any of its R, I or C can be reconfigured and used for different purposes. Moreover, the architectonic of this device is small, fast and low-powered. Henceforth, we foresee that the application of this technology is endless; memories, sensors, neuromorphic computing, random number generators, physically unclonable functions, advanced logic and adaptive/reconfigurable circuits are just a few examples from its long list of potential applications in both analogue and digital electronics.

This Topical Collection addresses the latest advances in the nanoarchitechtonics of the memristor, meminductor and memcapacitor. We invite scientists and engineers to contribute original research, reviews and perspective articles to inspire and shape the future directive towards the deployment of this fourth component for next-generation electronics.

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call "nanomaterials". These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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