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## Advances in Hybrid Energy Harvesting: Materials, Structures and Applications

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### Message from the Guest Editors

Hybrid energy harvesting can be defined as a procedure in which wasted ambient energy from various sources, such as light, heat, movement, vibration, or electromagnetic signals, is captured and converted to electric energy through transduction mechanisms such as photovoltaic, thermoelectric, pyroelectric, piezoelectric, and electromagnetic. Compared to conventional energy-harvesting devices, hybrid systems possess a significant advantage in that they can produce energy continuously, regardless of the environmental conditions. For example, a hybrid harvester consisting of a photovoltaic panel and a thermoelectric generator (TEG) can produce electric power during the day, mainly due to solar energy conversion. However, at night, TEGs continue to provide energy, taking advantage of temperature differences. Therefore, hybrid energy harvesters continuously provide stable, constant energy. As such, hybrid energy-harvesting systems could represent promising alternatives, especially for replacing batteries in low-power electronic devices and wearables, making them an important technology for achieving a sustainable society in the future.





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