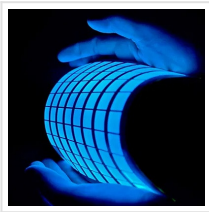
Success in Controlling the Composition of Perovskite Ions Paves the Way for Applying Their Flexibility to Devices



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Researchers at Kobe University have succeeded in completely substituting the halide ions of perovskite nanocrystals while maintaining their morphology and light-emitting efficiency.

Hybrid organic-inorganic perovskites have received much attention as potential next generation solar cells and as materials for light-emitting devices.

Kobe University's Associate Professor TACHIKAWA Takashi (of the Molecular Photoscience Research Center) and Dr. KARIMATA Izuru (previously a graduate student engaged in research at the Graduate School of Science) have succeeded in completely substituting the halide ions of perovskite nanocrystals while maintaining their morphology and light-emitting efficiency.

Furthermore, by using techniques such as single-particle photoluminescence imaging, the researchers were able to understand the momentary changes in light emission and the crystal structure, which in turn enabled them to develop a principle for controlling ion composition.

It is expected that these research results will contribute towards enabling the synthesis of perovskites of varying compositions and advancing the development of devices which utilize them. In addition, it is hoped that the flexibility of perovskite structures can be harnessed, allowing for them to be applied to devices and the creation of new functional materials.

These findings were published in the German academic journal 'Angewandte Chemie International Edition' on October 19, 2020.

Read the original article on Kobe University.