Development of novel light emitters based on hybrid nanostructures

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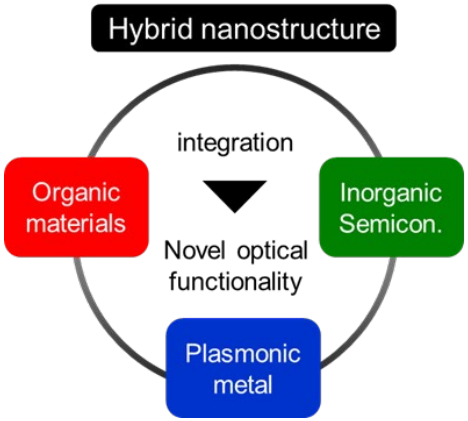
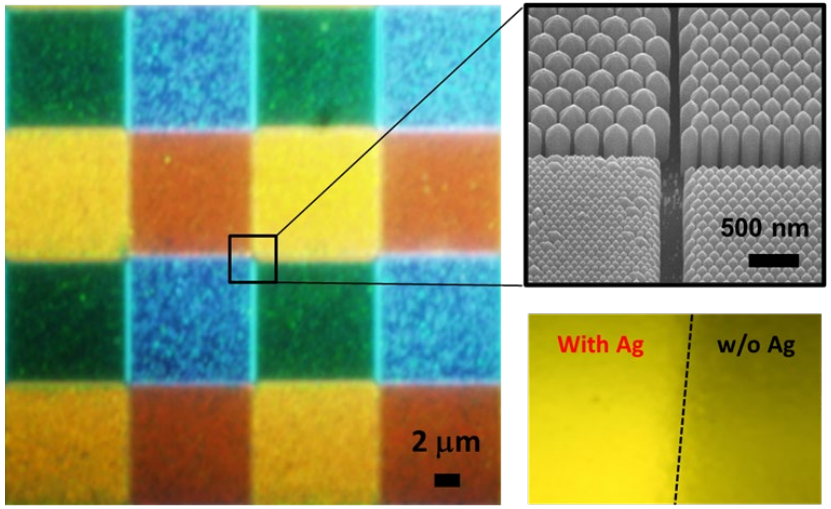
Research direction



Organic/inorganic Hybrid light emitters

Hybrid nanostructure based optical devices



Content:

LEDs and lasers are optoelectronic devices with advantages such as high efficiency, low power consumption, and long lifetime. Since the realization of blue LEDs, their application has expanded greatly. In our research, the unique effects of nanostructures are incorporated into light-emitting devices to generate novel optical functionalities. We are also studying metal nanostructures to further improve emission efficiencies. Hybrid nanostructure is a technology that can be applied to various material systems. In fact, we are promoting research on the application of light-emitting devices that combine metal halide perovskites, which are semiconductors that have attracted attention in recent years for use in solar cells. As described above, we aim to solve problems by compensating for the shortcomings of each material and device with hybrid nanostructures that transcend the boundaries of organic, inorganic, and metal materials, thereby improving the efficiencies of light-emitting devices and creating novel optical functionality.

Appealing point:

We can apply the above-mentioned technique to various optical material systems both experimentally and theoretically.

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