

Making aluminum shine like gold: Laser-induced Color Printing on Nanostructured Metal Films

Large-area, fade-resistant, laser-written color on inexpensive metal films for anti-counterfeit, branding, and decorative uses.

Researchers at Purdue University have developed a method for color printing that are resistant to fading and less toxic. The method involves creating nanostructured metal films where the thickness of the film determines the overall background color. Regions of the film are then structurally modified with a laser to create different color features. Compared to other laser-induced printing technologies, a much larger area can be printed, allowing for large-scale fabrication. In a proof-of-concept study, the researchers printed a two-colored checkered pattern and a gold-colored alphabet P using silver films. Recently the same technology has been also demonstrated with less expensive aluminum. The available colors include blue through green, and orange up to red. Applications of the printing technology include a very diverse palette of applications ranging from full-color printing and anti-counterfeit marking to decorate art and jewelry.

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