Researchers develop amphibian-inspired camouflage skin

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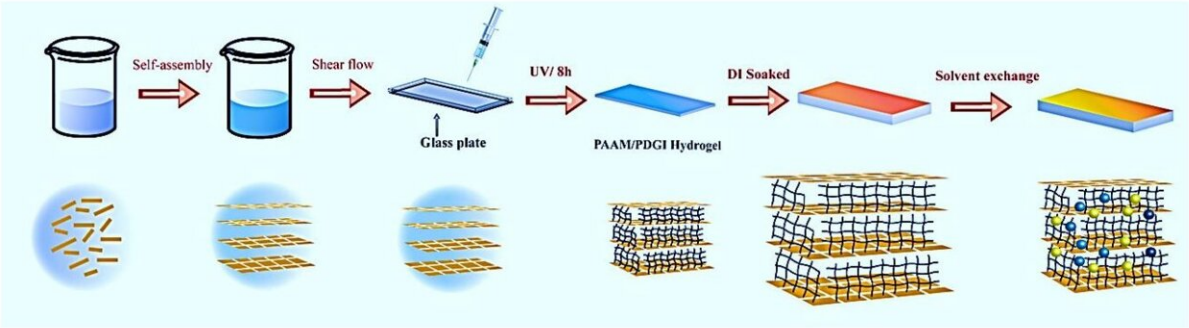

Preparation method of PDGI/PAAM (Glycerol/H_2O). Credit: *Advanced Optical Materials* (2024). DOI: 10.1002/adom.202302234

Inspired by amphibians such as the wood frog, investigators designed and synthesized a new type of camouflage skin involving one-dimensional photonic crystal structures assembled in three-dimensional flexible gels.

As described in *Advanced Optical Materials*, the camouflage skin can quickly recognize and match the background by modulating the optical signals of external stimuli.

It demonstrated excellent mechanical performance, self-adaptive camouflage capabilities in response to complex surroundings, and long-

term stability in real-world living environments. Bright structural color and mechanical flexibility were maintained even at temperatures as low as -80°C.

The advance could have a range of applications in areas such as artificial intelligence, self-adaptive camouflage, soft robotics, and flexible wearable electronics.

"There is a strong driving force toward artificial camouflage skin innovation in terms of flexibility, integration, and miniaturization," said co-corresponding author Wen-Yong Lai, Ph.D., of Nanjing University of Posts & Telecommunications, in China.

"We expect active cooperation with professionals of diverse backgrounds to enable further progress in high-performance amphibian-inspired artificial camouflage research."

More information: Yanting Gong et al, Bio-Inspired Camouflage Skin with Photonic Crystal Structure and Size-Confinement Effect, *Advanced Optical Materials* (2024). DOI: 10.1002/adom.202302234

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