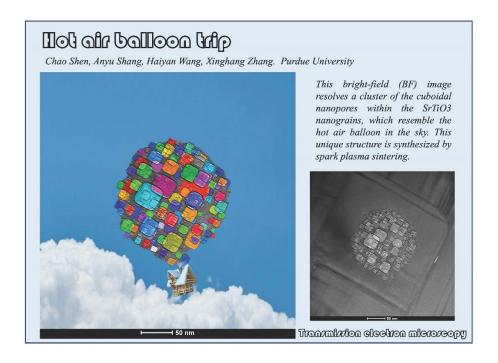
2023 Transmission Electron Microscopy category

First place: "Hot air balloon trip"

by Chao Shen, Anyu Shang, Haiyan Wang, Xinghang Zhang; Purdue University

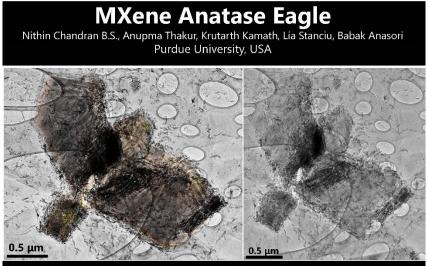




Chao Shen

Second place: "MXene Anatase Eagle"

by Nithin Chandran B.S., Anupma Thakur, Krutarth Kamath, Lisa Stanciu, Babak Anasori; Purdue University



A partially oxidized 2D titanium carbide $(Ti_3C_2T_x)$ MXene flake is visualized as an Eagle. Storage conditions and MXene synthesis methods have major roles in the stability of MXenes. Nano anatase (needle-like structures) can form at ambient conditions due to oxidation of $Ti_3C_2T_x$ MXene flakes that have defects, such as vacancies.

Transmission Electron Microscopy



Nithin Chandran

<u>Third place:</u> "MXene Morpho Butterfly" by Anupma Thakur, Nithin Chandran B.S., Krutarth Kamath, Lia Stanciu, Babak Anasori; Purdue University



A two-dimensional titanium carbide (Ti₃C₂T_x) MXene flake decorated titanium dioxide (TiO₂) is visualized as a butterfly. TiO₂ nanograins are formed due to the oxidation or hydrolysis of the Ti₃C₂T_x MXene flakes stored in water during 30 days of storage in ambient conditions. The large areas resembling butterfly wings consist of MXene flakes, while the small, needle-like nanograins are TiO₂.

Transmission Electron Microscopy



Anupma Thakur