

Light-emitting MXene quantum dots

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Figure 1. Top-down approaches for MQD synthesis.

In a new publication from *Opto-Electronic Advances*, researchers led by Professor Jeongyong Kim at the Department of Energy Science, Sungkyunkwan University, Suwon, Republic of Korea, review light-emitting MXene quantum dots.

MXenes have found wide-ranging applications in [energy storage devices](#), sensors and catalysis, owing to their high electronic conductivity and wide range of optical absorption. However, the absence of semiconducting MXenes has limited their applications related to light emission.

Extensively reviewing current relevant research, the authors summarize recent advances in MXene quantum dot (MQD) research on the synthesis, [optical properties](#) and applications of MQDs as light emitting quantum materials. Research has shown that quantum dots (QDs) derived from MXene (MQDs) not only retain the properties of the parent MXene but also demonstrate significant

improvement on light emission and quantum yield.

The authors provide an overview of light emitting MQDs and their synthesis methods, optical properties, and applications in various optical, sensory, and imaging devices. Future prospects for light emitting MQDs are also discussed to provide insight to help further advance research.

More information: Anir S. Sharbirin et al, Light-emitting MXene quantum dots, *Opto-Electronic Advances* (2021). [DOI: 10.29026/oea.2021.200077](https://doi.org/10.29026/oea.2021.200077)

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