Special Issue

Catalytic Nature of Quantum Dots: Relationship and Applications

Message from the Guest Editors

Quantum dots (QDs) are semiconductor nanocrystals with a size smaller than the Bohr radius of the corresponding bulk materials. QDs show different physical and chemical properties from those of bulk materials, which is mainly manifested in the quantum confinement effect and surface effect. These effects further yield adjustable band gaps and unique photoelectric properties of QDs, making them good candidates in photo- and photoelectrochemical catalysis. Specifically, QDs have been reported for hydrogen evolution, CO2 reduction, biomass reforming, organic synthesis, ammonia synthesis, degradation of pollutants, and so on, demonstrating their promising prospects. The detailed catalytic nature of QDs deserves further exploration, which is the purpose of this Special Issue.

Keywords:
- quantum dots
- photocatalysis
- artificial photosynthesis
- CO2 reduction
- H2 evolution

Guest Editors

Dr. Shan Yu
School of New Energy and Materials, Southwest Petroleum University, Chengdu 610500, China

Dr. Fengying Zhang
School of New Energy and Materials, Southwest Petroleum University, Chengdu 610500, China

Deadline for manuscript submissions

closed (30 September 2023)

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/si/152865

Catalysts
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
catalysts@mdpi.com

mdpi.com/journal/catalysts

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/journal/catalysts

MDPI

About the Journal

Message from the Editor-in-Chief

Editor-in-Chief

Prof. Dr. Keith Hohn
Carl R. Ice College of Engineering, Kansas State University, Manhattan, KS, USA

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compendex, CAPlus / SciFinder, CAB Abstracts, and other databases.

Journal Rank:

JCR - Q2 (Chemistry, Physical) / CiteScore - Q1 (General Environmental Science)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 15.9 days after submission; acceptance to publication is undertaken in 3.5 days (median values for papers published in this journal in the second half of 2025).