



2023「中技社科技獎學金」

2023 CTCI Foundation Science and Technology Scholarship

境外生研究獎學金

Research Scholarship for Overseas Students



Top-Down Structural Manipulation of Ultrathin Nanocatalysts

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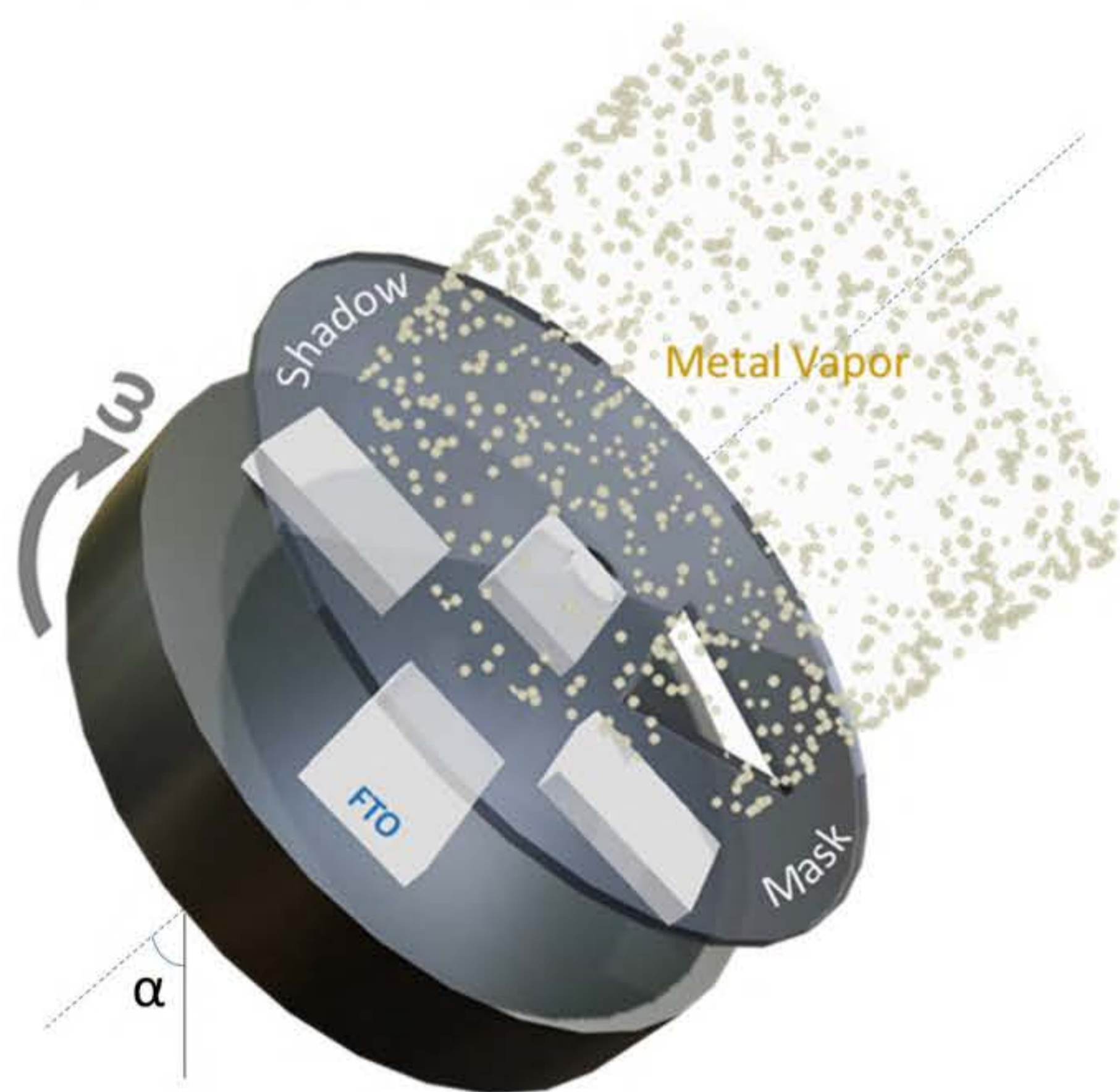
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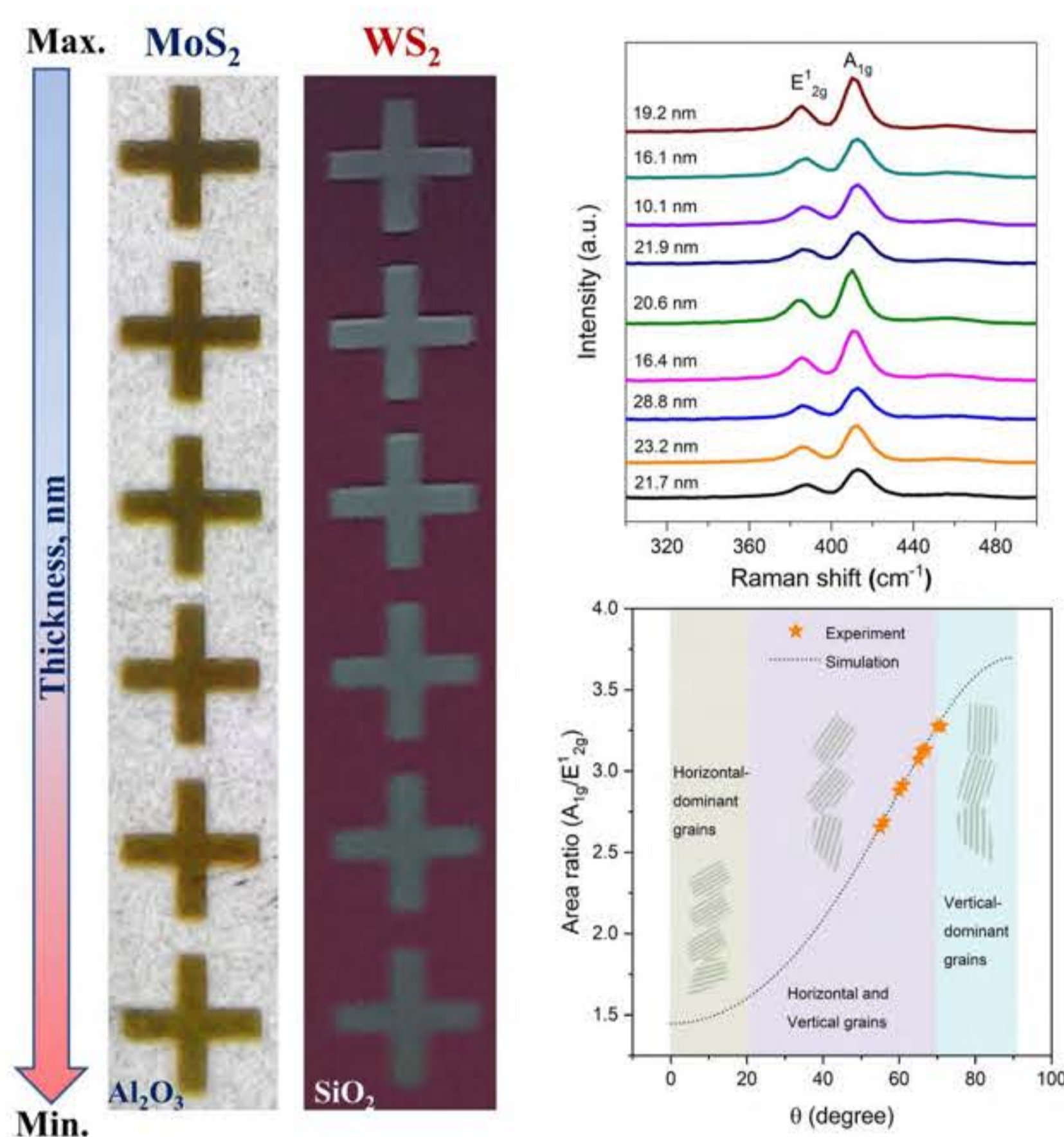
Abstract

My research focuses on structurally manipulating ultrathin nanocatalysts using a novel rotating shadow mask approach, allowing the fabrication of wafer-scale 2D gradients. We explore various morphologies of ultrathin 2D transition metal and metal dichalcogenides on a single substrate and investigate their impact on photo and electrocatalytic reaction kinetics. Our work emphasizes the importance of morphology-dependent carrier transport in ultrathin catalysts, offering a valuable platform for optimizing electro and photochemical catalysts for sustainable energy conversion.

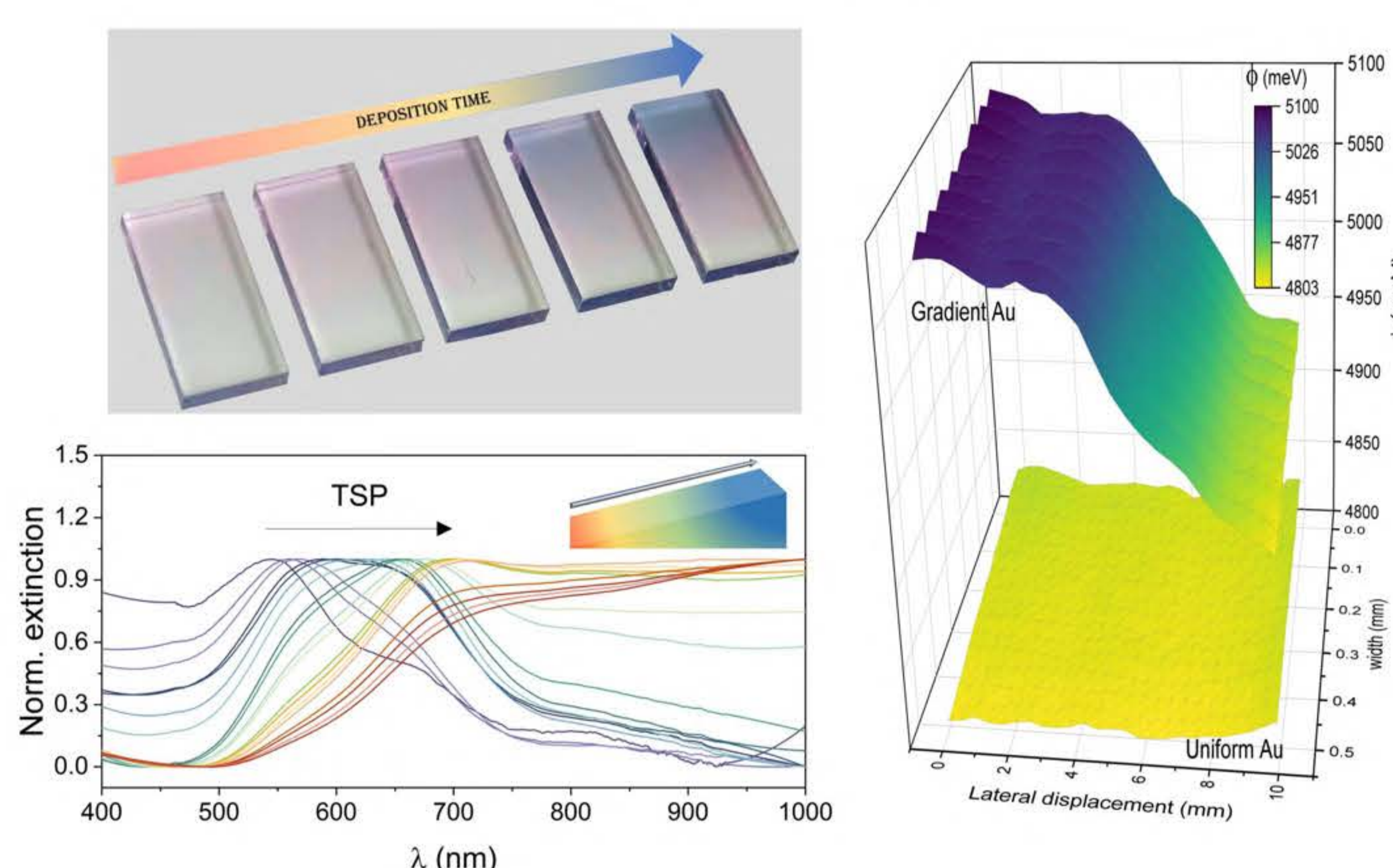
Rotating Shadow Mask Method



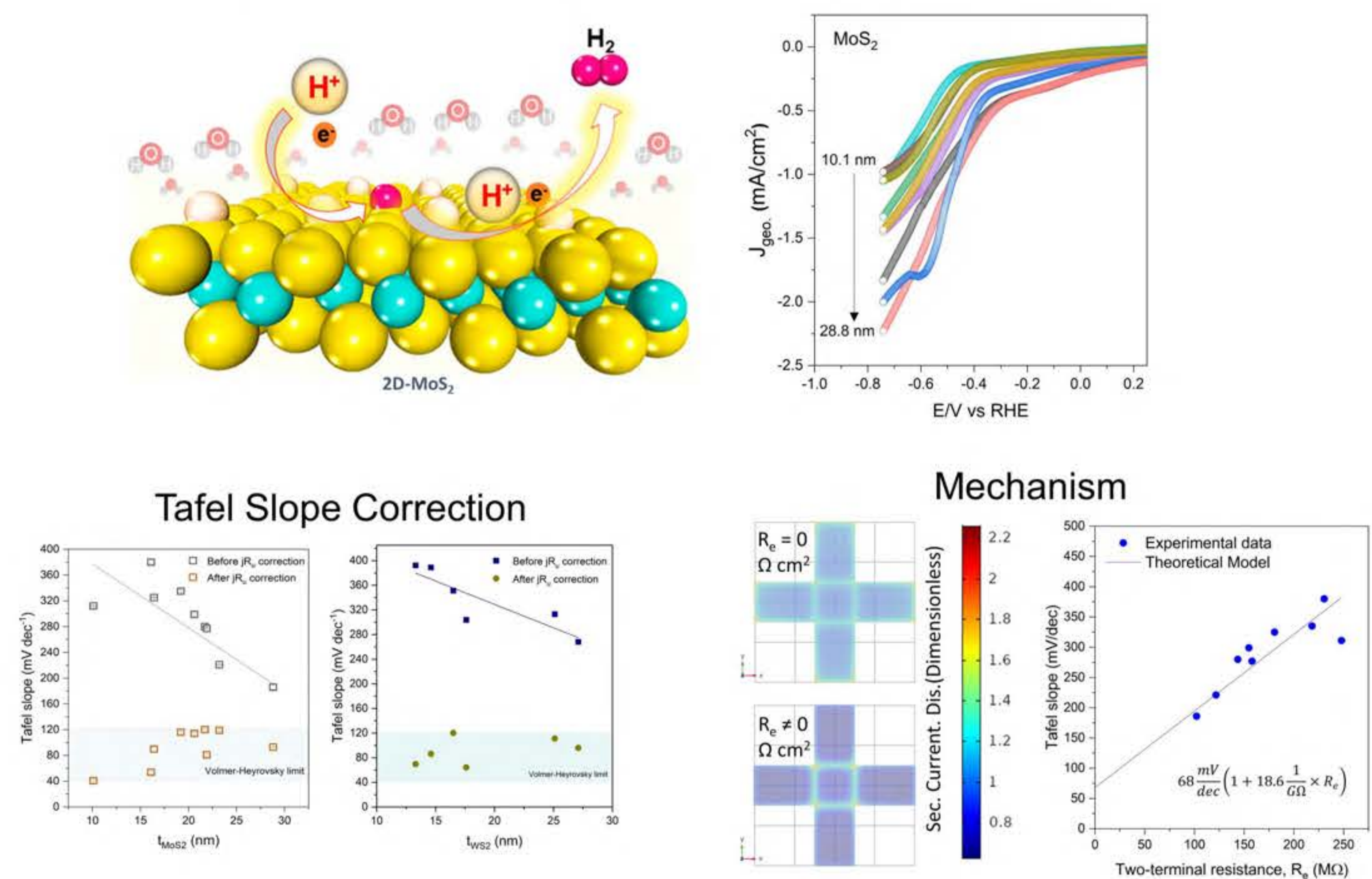
Gradient TMDs



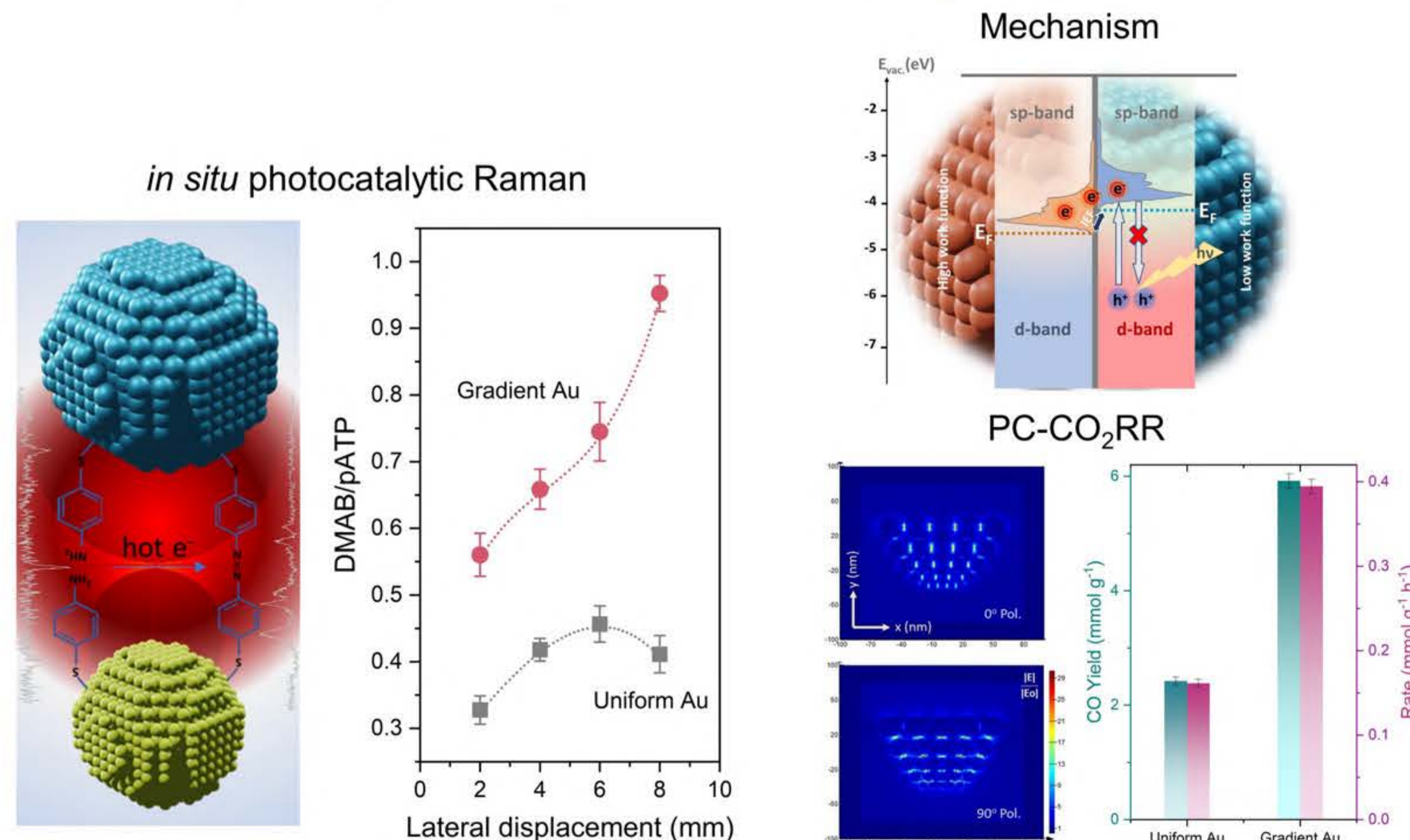
Gradient TMs



Morphological Impact on TMDs HER performance



Morphological Impact on TMs CO2RR performance



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Awards & Recognition:

- 2014-Elected as University Astronomy Club Coordinator
- 2015-State University Research Scholarship
- 2015-Junior Research Scholarship
- 2023- Academia Sinica Grants for Doctoral Student Attending International Conferences Abroad

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