



2024「中技社科技獎學金」

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研究獎學金

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Metamaterials and Nanodevices:

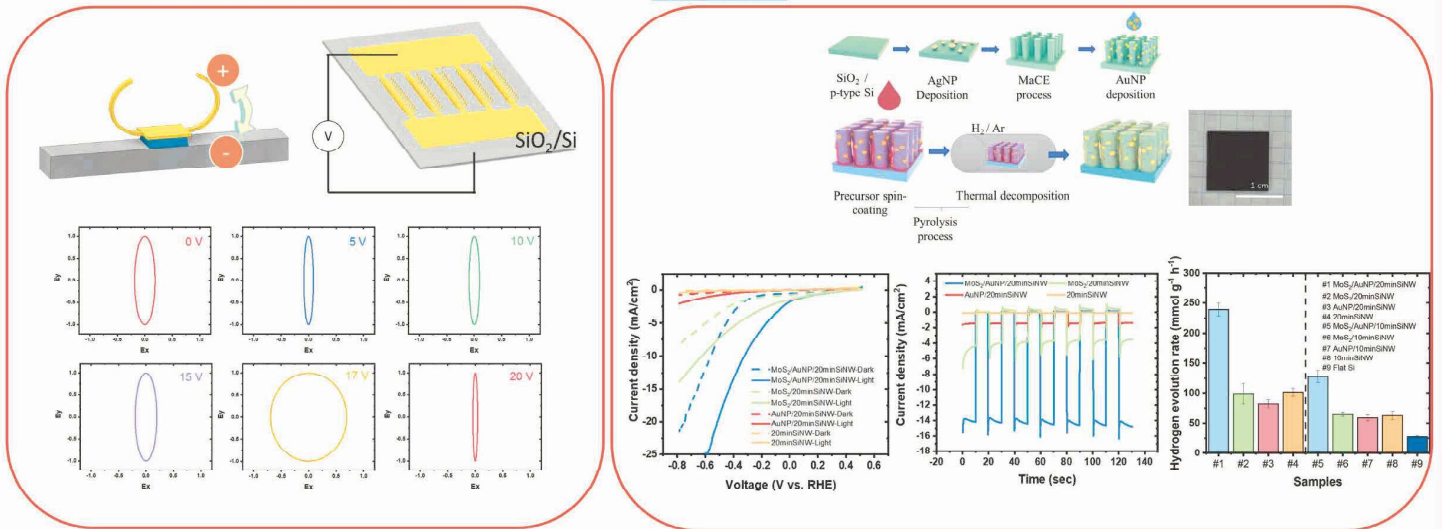
1. Active spatially reconfigurable mid-infrared polarization modulator with a vertical split-ring resonator array
2. Hydrogen evolution by 2D-MoS₂ nanofilm/1D-Si nanowire/0D-Au nanoparticle heterostructure

國立清華大學材料科學工程學系 陳君彥 指導教授：嚴大任

研究摘要

Metamaterials have provided more possibilities for controlling and modulating light in recent years. With the advance of nanofabrication techniques, the limitations of metamaterials have been gradually overcome, leading to a broader range of applications. This thesis explores two research topics related to metamaterials. Firstly, we examine the application of active metamaterials in controlling electromagnetic wave properties, by adjusting material structures to manipulate the propagation characteristics of electromagnetic waves. Secondly, we investigate the potential of metamaterials to harvest visible light and apply it to photo-induced hydrogen evolution for green energy, aiming to enhance the efficiency of this reaction. These studies demonstrate the potential of metamaterials in optical and electromagnetic fields.

研究成果



研究生活與心得

衷心感謝指導教授嚴大任老師，在學術上的指導與精神上的支持，是我完成研究的重要推動力，讓我在這段學術旅程中成長良多。感謝陳哲勤博士與田中拓男教授，提供我豐富的研究資源與學術自由。也感謝中技社研究獎學金對我研究的肯定，這是我繼續前行的重要動力。最後，感謝家人與實驗室成員們的支持，陪我走過這段學術旅程。



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