Wenfei Guo

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Education

Huazhong University of Science and Technology *Wuhan, China*
Undergraduate in Optoelectronic Engineering *Sept.2020 – Present*
GPA: 3.99/4.0, **Ranking**: 1/29, **Average Score**: 93.84
Relevant Courses: Calculus (100),
Quantum Mechanics (97),
Thermodynamics and Statistical Physics (97),
Fundamental of Digital Logic and System Design (99),
Analog Electronic Technology (99)

Publications

Wenfei Guo, Yantao Wu, Zhongfei Xiong, Yuhao Jing, and Yuntian Chen, "Simple yet effective analysis of waveguide mode symmetry: generalized eigenvalue approach based on Maxwell's equations," Opt. Express **30**(21), 37910-37924 (2022). DOI: https://doi.org/10.1364/OE.472148

Research Experience

School of Optical and Electronic Information, HUST
Supervisor: Prof. Yuntian Chen *Mar.2022 – Jul.2022*
We propose concise mathematical formalism for the analysis of waveguide mode symmetry. By rewriting the Maxwell's equations as a generalized eigenvalue problem, the symmetry properties of eigenmodes can be investigated using standard techniques. Several common symmetries in optics such as chiral, parity-time reversal, and rotation symmetry are well handled under our framework. I carried out the analytical calculations in building the theory, as well as FEM simulation and data visualization in this work.

School of Optical and Electronic Information, HUST
Supervisor: Prof. Yuntian Chen *Aug.2022 – Present*
Numerical methods for electromagnetic multipole decomposition for scattering problem (ongoing).

Skills

Tools & Programming
Matlab, COMSOL, Lumerical FDTD, LaTeX, Python, Mathematica, C

Awards

Honorable Mention in COMAP's Mathematical Contest in Modeling 2022
Scholarship for academic excellence, HUST 2022

Research Interests

Nanophotonic devices, waveguides
Symmetry in optical systems
Scattering of light in nanostructures