

黃冠榮博士現為國立清華大學工程與系統科學系副教授。他於國立臺灣大學物理學系取得博士學位。隨後，曾任國家理論科學研究中心物理組博士後學者，並赴美國橡樹嶺國家實驗室中子散射部門從事博士後研究；返國後曾任國立中山大學材料與光電科學系助理教授，於 2024 年加入國立清華大學。

黃博士的研究聚焦於軟凝態物質、小角度中子散射與散射反問題，致力於發展定量、低偏差且具物理可解釋性的分析方法，將小角度中子散射與同步輻射 X 光散射數據轉化為材料的微觀結構資訊，並進一步建立微觀結構與巨觀物性之間的定量關聯。其研究特別著重於模型無關的結構重建、散射長度密度分佈、粒子尺寸與形貌、取向分佈，以及外力場下軟物質的非平衡結構轉變。近年亦結合理論分析、數值演算法與統計推論方法，建立由散射訊號反演材料結構的系統性分析架構。

2025 年間，黃博士及其合作團隊的研究成果涵蓋模型無關的散射結構重建、儀器解析度效應修正、異向性散射分析，以及外加流場下自組裝微胞的結構轉變機制。其研究並獲國科會「2030 跨世代年輕學者方案—優秀年輕學者」及國家理論科學研究中心物理組「年輕理論學者獎」等肯定。此外，他亦積極參與國內外學術社群服務與國際合作，擔任國家同步輻射研究中心 Neutron User Executive Committee 副主席及國家理論科學研究中心 TG4.3 核心成員，並參與國內外中子散射設施之研究計畫審查、學生培育與學術交流。

Dr. Guan-Rong Huang is currently an Associate Professor in the Department of Engineering and System Science at National Tsing Hua University (NTHU). He received his Ph.D. degree from the Department of Physics at National Taiwan University. He subsequently worked as a postdoctoral researcher in the Physics Division of the National Center for Theoretical Sciences (NCTS) and later as a postdoctoral research associate in the Neutron Scattering Division at Oak Ridge National Laboratory in the United States. After returning to Taiwan, he served as an Assistant Professor in the Department of Materials and Optoelectronic Science at National Sun Yat-sen University before joining NTHU in 2024.

Dr. Huang's research focuses on soft condensed matter, small-angle neutron scattering, and inverse problems in scattering measurements. He is interested in developing quantitative, minimally biased, and physically interpretable analysis methods for converting small-angle neutron scattering and synchrotron X-ray scattering data into microscopic structural information, with the broader aim of establishing quantitative connections between microscopic structures and macroscopic material properties. His research particularly addresses model-independent structural reconstruction, spatial distributions of scattering-length density, particle size and morphology, orientational distribution functions, and nonequilibrium structural changes of soft matter under external fields. In recent years, he has also combined theoretical analysis, numerical algorithms, and statistical inference methods to establish systematic approaches for reconstructing material structures from scattering signals.

During 2025, Dr. Huang and his collaborators worked on several research topics, including model-independent structural reconstruction from scattering data, correction of instrumental-resolution effects, analysis of anisotropic scattering, and structural change mechanisms of self-assembled micelles under externally applied flow fields. These studies reflect an effort to connect methodological development with experimentally relevant problems in scattering research of soft condensed matter. His research has been recognized through the Outstanding Young Scholar award under the National Science and Technology Council's 2030 Young Scholar Program and the NCTS Young Theorist Award.

In addition to research, Dr. Huang actively participates in academic community

service and international collaboration. He serves as Vice Chair of the Neutron User Executive Committee of the National Synchrotron Radiation Research Center and as a core member of TG4.3 at NCTS. He also contributes to proposal reviews for neutron-scattering facilities in Taiwan and abroad, student training, and academic exchange activities.