2024 Strongly Correlated Physics – Numerical And Analytical Approaches

Time: August 5- August 8, 2024，9:00 am- 18:00 pm (UTC +8, Taiwan time)

Venue： Room 158,Science building #3,陽明交大科學三館 SC158

Registration link: https://reurl.cc/RqxmZx   *Registration deadline:2024/07/29*

Introduction：

多體物理是考慮當量子系統中具有強交互作用以及強糾纏的情況下的特性，能產生例如高溫超導、拓樸序等有趣的特殊性質。在理論研究上，已經發展了許多針對多體系統，包含解析以及數值的方法。這次暑期學校將結合兩個主題研究團隊的長處--強關聯系統的數值以及解析方法，並且邀請實驗學家介紹相關主題。我們預期這個會議將從這三個方向介紹強關聯系統研究的不同切入法，活化三個研究社群的交流，降低知識交流的屏障，彼此學習合作，形成挑戰研究領域中關鍵問題的合作基礎。我們將邀請國內外研究者，介紹以下四大主題：

Many-body physics must be considered when a quantum system's interaction and entanglement are strong. In recent decades, many methods, analytical and numerical, have been developed to solve many-body problems.This summer school will combine the strengths of two research teams focusing on strongly correlated systems, both in numerical and analytical approaches, and will invite experimentalists to introduce related topics. We anticipate that this conference will present different approaches to the study of strongly correlated systems from these three perspectives, invigorate communication among the three research communities, reduce barriers to knowledge exchange, and foster collaborative learning. This will lay the groundwork for collaborative efforts to address key issues in the field. We will invite researchers from both domestic and international institutions to present on the following four major topics:

- Dynamical mean-field theory and Numerical renormalization group
- Field theory and quantum renormalization group
- Tensor network
- Experiments

並且設計適合的操作型學習課程（**Tutorial**），培養年輕研究者的實作能力。

Additionally, we will design suitable hands-on learning tutorials to develop the practical skills of young researchers.

Speakers：

Akira Furusaki (RIKEN)
Hoa Nghiem (Phenikaa University)
Chisa Hotta (University of Tokyo)
Atsushi Fujimori (University of Tokyo)
Hiroshi Shinaoka (Saitama University) *-online*
Sung-Sik Lee (Perimeter Institute for Theoretical Physics (PI, Perimeter, PITP)*-online*
Jan von Delft (Ludwig-Maximilians-University (LMU), Munich) *-online*
Ian McCulloch (NTHU)
Yu-Te Hsu (NTHU)
Tsung-Han Lee (NCCU)
Ying-Jer Kao (NTU)
Chung-Hou Chung (NYCU)
Chia-Min Chung (NSYSU)
Yi-Hsien Du (University of Chicago)

Organizers：

Pochung Chen (NTHU)
Chung-Hou Chung (NYCU)
Chien-Te Wu (NYCU)
Yi-Ping Huang (NTHU)
Chia-Min Chung (NSYSU)
Po-Yao Chang (NTHU)
Ming-Chiang Chung (NCHU)
Yu-Cheng Lin (NCCU)
Hsiu-Chuan Hsu (NCCU)
Ching-Yu Huang (THU)
Stefan Kirchner (NYCU)
Chang-Tse Hsieh (NTU)
Shin-Ming Huang (NSYSU)
Jhih-Shih You (NTNU)

NCTS National Center for Theoretical Sciences Physics Division 國家理論科學研究中心 物理組