

2022 NCTS Physics Forum and Annual Meeting
 國家理論科學研究中心物理領域成果發表暨研討會

Nov. 18-19, 2022 NCTS Physics Lecture Hall 4F, Chee-Chun Leung Cosmology Hall, NTU

<i>Friday, November 18, 2022</i>		
Chair: Jiunn-Wei Chen (Deputy Director, NTU)		
	9:30 – 10:00	Registration
	10:00 – 10:30	Guang-Yu Guo (Division Director, NTU) Opening remarks + Director's Report
	10:30 – 10:40	VIP remarks 長官致詞 Deputy Minister Lin 林副主委 (NSTC 國科會)
1	10:40 – 11:05	Hsi-Sheng Goan (TG1.1 Coordinator, NTU) TG1.1 Report
2	11:05 – 11:25	Yuan-Chung Cheng (TG1.1 CS, NTU) Quantum Computing for Molecular Properties and Dynamics: Applications and Perspectives
3	11:25 – 11:50	Wen-Te Liao (TG1.2 CS, NCU) TG1.2 Report
	11:50 – 12:00	Group Photo 大合照
	12:00 – 13:30	Lunch + Poster Session (4F Lecture Hall + 3F Seminar Room)
Chair: You-Hua Chu (Executive Committee Member, Academia Sinica)		
1	13:30 – 13:50	Hsiang-Hua Jen (TG1.2 core member, AS) A non-Hermitian optical atomic mirror
2	13:50 – 14:15	Yeong-Cherng Liang (TG1.3 coordinator, NCKU) TG1.3 Report
3	14:15 – 14:35	Hong-Bin Chen (TG1.3 core member, NCKU) Precession-induced nonclassicality of the free induction decay of NV centers by a dynamical polarized nuclear spin bath
4	14:35 – 15:00	Feng-Chuan Chuang (TG3.1 coordinator, NSYSU) TG3.1 Report
5	15:00 – 15:20	Yang-Hao Chan (TG3.1 CS, AS) Exciton dynamics in quasi-2D materials
6	15:20 – 15:45	Min-Kai Lin (TG2.3 coordinator, AS) TG2.3 Report
7	15:45 – 16:05	Hsi-Yu Schive (TG2.3 CS, NTU) Cutting-edge astrophysical simulations
	16:05 – 17:30	Coffee + Poster Session
	18:30 – 20:00	Banquet 水源會館 (By invitation only)

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Saturday, November 19, 2022		
Chair: Chon-Saar Chu (Executive Committee Member, NYCU)		
1	9:30 – 9:55	Cheng-Wei Chiang (TG2.1, coordinator, NTU) TG2.1 Report
2	9:55 – 10:15	Chuan-Hung Chen (TG2.1 CS, NCKU) Search for new physics from flavor-changing neutral currents
3	10:15 – 10:40	Jeng-Da Chai (TG4.2 coordinator, NTU) TG4.2 Report
4	10:40 – 11:00	Chao-Ping Hsu (TG4.2 CS, AS) Theoretician with biological problems: Noise reduction and cell division
5	11:00 – 11:25	Chung-Hou Chung (TG3.2 coordinator, NYCU) TG3.2 Report
6	11:25 – 11:45	Chien-Te Wu (TG3.2 CS, NYCU) Topological phase transitions of Dirac magnons in honeycomb ferromagnets
	11:45 – 14:00	Buffet Lunch 7F Grand Lobby (By invitation only)
Chair: Guang-Yu Guo (Division Director, NTU)		
1	14:00 – 14:25	Pochung Chen (TG4.1 coordinator, NTHU) TG4.1 Report
2	14:25 – 14:45	Yu-Cheng Lin (TG4.1 CS, NCCU) Random singlets and permutation symmetry in disordered spin-S chains
3	14:45 – 15:10	Yu-tin Huang (TG2.2 coordinator, NTU) TG2.2 Report
4	15:10 – 15:20	Dimitrios Giataganas (TG2.2 core member, NSYSU) Holography in Strongly Interacting Matter
5	15:20 – 15:45	Hsuan-Yi Chen (TG4.3 coordinator, NCU) TG4.3 report
6	15:45 – 16:05	Lee Wei Yang (TG4.3 core member, NTHU) Drug Discovery Driven by Linear Response Theories, Molecular Mechanics and Bioinformatics
	16:05 – 17:00	Coffee + Poster Session
	17:00	Closing

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Poster session: TG coordinators (4F West Corridor)	
1	Prof. Hsi-Sheng Goan (TG1.1, NTU) TG1.1: Quantum Computing and Interdisciplinary Applications
2	Prof. Wen-Te Liao (TG1.2, NCU) (Substitute for Prof. Ray-Kuang Lee) TG1.2: Quantum physics and engineering
3	Prof. Yeong-Cherng Liang (TG1.3, NCKU) TG1.3: Quantum Information and Communication
4	Prof. Cheng-Wei Chiang (TG2.1, NTU) TG2.1: High energy phenomenology
5	Prof. Yu-tin Huang (TG2.2, NTU) TG2.2: High energy theory
6	Prof. Min-Kai Lin (TG2.3, AS) TG2.3: Theoretical and Computational Astrophysics
7	Prof. Feng-Chuan Chuang (TG3.1, NSYSU) TG3.1: Computational quantum materials
8	Prof. Chung-Hou Chung (TG3.2, NYCU) TG3.2: Strongly correlated condensed matter and cold atom systems
9	Prof. Pochung Chen (TG4.1, NTHU) TG4.1: High-performance computation and machine learning
10	Prof. Jeng-Da Chai (TG4.2, NTU) TG4.2: Nanoscale Physics and Chemistry
11	Prof. Hsuan-Yi Chen (TG4.3, NCU) TG4.3: Complex systems

Poster session: Center Scientists + Core members (R429)	
1	Dr. Yang-Hao Chan (TG3.1, AS) Excited state calculations from first-principles
2	Prof. Cheng-Hung Chang (TG4.3, NYCU) Thermal physics beyond a unique definition of temperature
3	Prof. Tay-Rong Chang (TG3.1, NCKU) Electronic structures of topological materials
4	Prof. Shin-Liang Chen (TG1.3, NCHU) Complete classification of steerability under local filters
5	Prof. Cheng-Wei Chiang (TG2.1, NTU) Various Particle Phenomenology Studies

6	Prof. Chong-Sun Chu (TG2.2, NTHU) Novel Casimir Current from Vacuum Quantum Fluctuations
7	Dr. Liang-Yan Hsu (TG4.2, AS) Applications of Macroscopic Quantum Electrodynamics in Chemistry
8	Dr. Hsiang-Hua Jen (TG1.2, AS) + Prof. Jhih-Shih You (TG3.2, NTNU) A non-Hermitian optical atomic mirror
9	Prof. Horng-Tay Jeng (TG3.1, NTHU) NCTS Thematic Group 3.1 Quantum Computational Materials
10	Prof. Yueh-Ning Lee (TG2.3, NTNU) Numerical and physics challenges in protoplanetary disk formation
11	Prof. Ray-Kuang Lee (TG1.2, NTHU) NCTS Thematic Group 1.2 : Quantum physics and engineering
12	Prof. C.-J. David Lin (TG2.1, NYCU) Lattice field theory group activities at National Yang Ming Chiao Tung University
13	Prof. Cheng-Pang Liu (TG2.1, NDHU) Direct Searches of Light Dark Matter
14	Prof. Daw-Wei Wang (TG3.2, NTHU) Exploring Quantum Many-Body Problems by Neural Networks with Self-Supervised Learning
15	Prof. Chien-Te Wu (TG3.2, CYCU) Topological phase transitions of Dirac magnons in honeycomb ferromagnets
16	Prof. Wei-Min Zhang (TG1.3, NCKU) Nonperturbative renormalization of quantum thermodynamics from weak to strong couplings

Poster session: Postdocs (3F North and East Corridor)

1	Dr. Sourav Ballav (TG2.2 Postdoc, NTU) Scattering Amplitudes from Covariant Recursion
2	Dr. Hugues Beauchesne (TG2.1 Postdoc, NTU) Is the decay of the Higgs boson to a photon and a dark photon currently observable at the LHC?
3	Dr. Yao-Wen Chang (TG4.2 Postdoc, NTU) Quantum anomalous Hall effect in AB-stacked MoTe ₂ /WSe ₂ moire heterobilayers
4	Dr. Yung-Yeh Chang (TG3.2 Postdoc, NYCU) A mechanism for the strange metal phase in rare-earth intermetallic compounds
5	Dr. Wei-Chih Chen (TG4.2 Postdoc, NTU) Computational Studies of Palladium Catalysts Based on the Secondary Phosphine Oxide Ligands in Various Cross-Coupling Reactions
6	Dr. Po-Hau Chou (TG3.2 Postdoc, CYCU) Quantum oscillations of Kondo screening phases in strong magnetic fields
7	Dr. You-Lin Chuang (TG1.2 Postdoc, NTHU)

	Optical-density enhanced quantum entanglement via four-wave mixing process
8	Dr. Jozef Genzor (TG4.1 Postdoc, NTU) Critical exponents on fractal-lattice Ising model by HOTRG
9	Dr. Amrita Ghosh (TG4.1 Postdoc, NTU) Determination of bosonic topological phase transitions on honeycomb lattice via deep learning using correlation functions
10	Dr. He-Feng Hsieh (TG3.2 Postdoc, NTU) Gravitational Waves from Rotating Core-Collapse Supernovae
11	Dr. Yen-Hsun Lin (TG2.1 Postdoc, NTU) Search for Afterglow: Light Dark Matter Boosted by Supernova Neutrinos
12	Dr. Shiladitya Mal (TG1.3 Postdoc, NCKU) Device-independent entanglement quantification in the presence of losses
13	Dr. Alvina On (TG2.3 Postdoc) Seeing and measuring cosmic magnetic fields
14	Dr. Mugdha Sarkar (TG2.1 Postdoc, NTU) SU(2) gauge theories with multiple Higgs fields in different representations on the lattice
15	Dr. Shiue-Yuan Shiau (TG1.2 Postdoc, NTHU) From hybrid polariton to dipolariton using non-Hermitian Hamiltonians to handle particle lifetimes
16	Dr. Gelo Noel Tabia (TG1.3 Postdoc, NCKU) Bell violations from random mutually unbiased bases
17	Dr. Renata Wong (TG1.1 Postdoc, NTU) Quantum computing for biomedicine, and bio-inspired quantum algorithms
18	Dr. Chia-Chou Wu (TG4.3 Postdoc NTU) Single-cell p53-Mdm2 dynamics reveal cell cycle-specific regulation of the p53 oscillator
19	Dr. Yasuhiro Yamamoto (TG2.1 Postdoc, NTU) New force search with precision isotope shift