Chiung Hwang 教授

Name: 黄治雄/Chiung Hwang

Research Areas: Quantum Field Theory and String Theory

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Employment & Education

2023-present	Professor, University of Science and Technology of China
2023 - 2023	Tenure-Track Assistant Professor, University of Science and Technology of China
2022 - 2023	Young Scientist Fellow, Institute for Basic Science, Korea
2020 - 2022	Research Associate, University of Cambridge, UK
2018 - 2020	Research Fellow, University of Milano-Bicocca, Italy
2015 - 2018	Research Fellow, Korea Institute for Advanced Study, Korea
2010 - 2015	PhD, Pohang University of Science and Technology, Korea

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Research Interests

My main research interest is the interplay between strongly interacting phenomena in quantum field theory and quantum aspects of gravity, which are crucial issues in modern physics. I have been tackling this problem by employing the ideas of string theory, supersymmetry, and the AdS/CFT correspondence, a holographic duality connecting gravity and quantum field theory.

Current Research Topics and Selected Papers

A. Dualities in quantum field theory and their building blocks

- S. Giacomelli, C. Hwang, F. Marino, S. Pasquetti and M. Sacchi, Probing bad theories with the dualization algorithm I, 2309.05326.
- R. Comi, C. Hwang, F. Marino, S. Pasquetti and M. Sacchi, The SL(2, Z) dualization algorithm at work, JHEP 06 (2023) 119, [2212.10571].
- C. Hwang, S. Pasquetti and M. Sacchi, Rethinking mirror symmetry as a local duality on fields, Phys. Rev. D 106 (2022) 105014, [2110.11362].
- C. Hwang, S. S. Razamat, E. Sabag and M. Sacchi, Rank Q E-string on spheres with flux, SciPost Phys. 11 (2021) 044, [2103.09149].
- C. Hwang, S. Pasquetti and M. Sacchi, 4d mirror-like dualities, JHEP 09 (2020) 047, [2002.12897].

B. The AdS/CFT correspondence and black hole microstates

- S. Choi and C. Hwang, Universal 3d Cardy Block and Black Hole Entropy, JHEP 03 (2020) 068, [1911.01448].

- S. Choi, C. Hwang and S. Kim, Quantum vortices, M2-branes and black holes, 1908.02470.

- S. Choi, C. Hwang, S. Kim and J. Nahmgoong, Entropy Functions of BPS Black Holes in AdS4 and AdS6, J. Korean Phys. Soc. 76 (2020) 101 – 108, [1811.02158].

- S. Cheon, D. Gang, C. Hwang, S. Nagaoka and J. Park, Duality between N=5 and N=6 Chern-Simons matter theory, JHEP 11 (2012) 009, [1208.6085].

- D. Gang, C. Hwang, S. Kim and J. Park, Tests of AdS4/CFT3 correspondence for N = 2 chiral-like theory, JHEP 02 (2012) 079, [1111.4529].

C. The exact computation techniques of supersymmetric partition functions and applications

- D. Ghim, C. Hwang and P. Yi, Generalized Euler Index, Holonomy Saddles, and Wall-Crossing, JHEP 03 (2020) 107, [1909.11092].

- C. Hwang, H. Kim and J. Park, On 3d Seiberg-Like Dualities with Two Adjoints, Fortsch. Phys. 66 (2018) 1800064, [1807.06198].

- C. Hwang, P. Yi and Y. Yoshida, Fundamental Vortices, Wall-Crossing, and Particle-Vortex Duality, JHEP 05 (2017) 099, [1703.00213].

- C. Hwang and J. Park, Factorization of the 3d superconformal index with an adjoint matter, JHEP 11 (2015) 028, [1506.03951].

- C. Hwang, J. Kim, S. Kim and J. Park, General instanton counting and 5d SCFT, JHEP 07 (2015) 063, [1406.6793].