

Yong Kwon

rainstar77@pukyong.ac.kr
Bachelor of Science
PKNU, Busan, Republic of Korea

Research interests

Quantum computing (FTQC, surface code, QEC)
quantum information (entanglement entropy, concurrence)

Education

- 2022 – Present **Pukyong National University** – Busan
M.S. in physics
Mentors: Prof. Byung-Soo Choi, Prof. Seung Ki Baek (–2022.05, 08 as an official document)
- 2016 – 2022 **Pukyong National University** – Busan
B.S. in physics
Mentors: Prof. Seung Ki Baek, Prof. Jaegon Um

Publications

- 2022.09 **Correlation between concurrence and mutual information**
Yong Kwon, Seung Ki Baek, and Jaegon Um
J. Stat. Mech. (2022) 093104, [doi](#)

Research experience

- 2022 – **EPIQUS Project**
Mentors: Prof. Byung-Soo Choi (PKNU)
 - Project Overview: [main page](#) / [CORDIS information](#)
 - Build up the optimized software for epiqus project
- 2021 – Spring
2022 **Entanglement vs mutual information on two qubit system**
Mentors: Prof. Jaegon Um (POSTECH), Prof. Seung Ki Baek (PKNU)
 - Investigate on two spin-1/2 particles
 - Find correlated information entropy on classical definition and quantum definition
 - Compare two entropy values using ‘Concurrence’

Fall 2020 **Quantum-like game development**

Mentors: Prof. Jae-yeol Hwang (PKNU) (only for class guidance)

- The word ‘Quantum-like game’ means a game made by applying the phenomenon to introduce to those who are not familiar with quantum physics.
- This project worked during the one of undergraduate classes, ‘Capstone Design I’
- My contributions: project idea suggestion, introducing concept of quantum-like games, GUI development
- Find more detailed information following Github team [repository](#).

Teaching experience

Fall 2022 **TA, Physical Experiment II (PKNU)**

A physical experiment class in general physics topics for freshman students.

Spring 2022 **TA, Physical Experiment I (PKNU)**

A physical experiment class in general physics topics for freshman students.

Talks and posters

2022. 04. **[T]** Correlation between mutual information and concurrence

KPS Spring Meeting 2022

2021. 10. **[P]** Correlation between mutual information and concurrence

KPS Fall Meeting 2021

2021. 08. **[P]** Entanglement vs. mutual information

Roles of heterogeneity in non-equilibrium collective dynamics (RHINO) 2021 [link](#)

Technical skills

Programming languages

Python, C (a little bit), \LaTeX , Markdown

Software

\LaTeX , Git, Mathematica, Linux (usually Ubuntu)

Languages

Korean (mother language), English (intermediate level)

Activities

2022. 01. **The 19th KIAS-APCTP winter school on statistical physics**

2017. 07. **PKNU-ISS (International Summer School) Program**

- Officially certified program by PKNU
- Attended seasonal classes with abroad students who were enrolled to my university
- To this program, my english skill has improved and felt their cultural difference

Traveling abroad experiences

- Vietnam (2016) , Taiwan (2016) , Japan (2018) and Italy (2020)