

Ph.D. Youngjai Park

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Professional Careers

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| Postdoctoral Researcher | Mar 2023 – present. |
| Center for Neuroscience Imaging Research (CNIR), Republic of Korea | |
| Postdoctoral Researcher | Mar 2022 – Feb 2023. |
| Statistical Physics of Ecology and Evolution Dynamics (SPEED) Group, Department of Physics, Inha University, Republic of Korea Asia Pacific Center for Theoretical Physics (APCTP), Republic of Korea | |
| Postdoctoral Researcher | Mar 2021 – Feb 2022. |
| Statistical Physics of Ecology and Evolution Group, Asia Pacific Center for Theoretical Physics (APCTP), Republic of Korea | |
| Visiting Researcher | Sep 2020 – Feb 2021. |
| Statistical Physics of Ecology and Evolution Group, Asia Pacific Center for Theoretical Physics (APCTP), Republic of Korea | |
| Visiting Researcher | Aug 2018 – Jan 2019. |
| Complexity Science Group, Department of Physics and Astronomy, University of Calgary, Canada | |

Educations

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| Ph.D. in Applied Physics | Mar 2016 – Feb 2021. |
| Department of Applied Physics, Hanyang University, Republic of Korea Thesis: Network stylometry in complex systems: focused on the motif structures Thesis Advisor: Prof. Seung-Woo Son | |
| B.Sc. in Applied Physics | Mar 2010 – Feb 2016. |
| Department of Applied Physics, Hanyang University, Republic of Korea | |

Grants

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| NRF, Postdoctoral Research Program | Sep 2023 – Aug 2026. |
| Title: Study on transition dynamics of relative phase to investigate conscious/unconscious states in human brain Center for Neuroscience Imaging Research, N Center, Republic of Korea | |
| NRF - GRA program in Canada | Aug 2018 – Jan 2019. |
| Title: Motif dynamics on a growing network model for various open evolving systems | |

Department of Physics and Astronomy, University of Calgary, Canada

Hanyang University combined MS/Ph.D. grant

Mar 2016 – Feb 2019.

Department of Applied Physics, Hanyang University, Republic of Korea

Organizing Experiences

- **Modeling on Ecology and Evolution Workshop**, Seoul, Republic of Korea (Oct 27th – 29th, 2022). ([link](#))
 - **Workshop about social science and physics**, Deagu, Republic of Korea (Nov 29th – 30th, 2021).
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Relevant Activities

Teaching Assistant

Aug 2022 – Dec 2022.

KENTECH (Korea Institute of Energy Technology), Republic of Korea

- General Physics

Research & Teaching Assistant

Mar 2016 – Aug 2018.

Department of Applied Physics, Hanyang University, Republic of Korea

- General Physics Lab. 1
- Computational Physics
- Applications of Computational Physics
- Scientific Analysis and Presentation

Relevant activity

Apr 2014 – Aug 2015.

- UST research internships, Korea Electrotechnology Research Institute (KERI) & University of Science and Technology (UST), Republic of Korea (Aug 2015); KOSAF Working scholarship in KERI (Apr 2014).

Korean military service

Mar 2011 – Dec 2012.

Trainings

- 2017 NIMS Study Group with Industry, National Institute for Mathematical Sciences (NIMS) & Innovation Center for Industrial Mathematics (ICIM), Republic of Korea (Dec, 2017).
 - 16th APCTP Science Communication School, Asia Pacific Center for Theoretical Physics (APCTP), Republic of Korea (Feb 2017).
 - 2016 Summer Special Lecture, Korea Academy of Complexity Studies (KACS), Republic of Korea (Aug 2016).
 - 2016 NIMS-SKKU MDA-TDA Summer School, National Institute for Mathematical Sciences (NIMS), Republic of Korea (Jun 2016).
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Awards

Awards

- **Excellent Poster Award**, 2023 IBS CNIR workshop, Republic of Korea (Dec 2023).
 - **Best award**, 2017 KACS autumn conference, Republic of Korea (Nov 2017).
 - **Best award**, The 8th KIAS CAC Summer School, Republic of Korea (Jul 2017).
 - **Excellent Presentation Award**, 16th APCTP Science Communication School, Republic of Korea (Feb 2017).
 - **Encouragement Prize**, Best Paper Competition commemorating the 2016 International Council on Archives Congress Presidential Archives, Republic of Korea (Dec 2016).
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- **Best Poster Presentation**, 2016 KPS spring conference, Republic of Korea (Apr 2016).
 - **Excellence Award**, 2015 Applied Science Capstone Design Competition, Republic of Korea (Nov 2015).
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Publications

- **Youngjai Park**, Younghwa Cha, Hyoungkyu Kim, Yukyung Kim, Jae Hyung Woo, and Joon-Young Moon, “Relative Phase Patterns of Human Brain Waves Quantify Brain Dynamics”, (*in preparation*).
 - Yeji Lee, Sujung Park, Hyoungkyu Kim, Jeongmin Kim, Eun Jung Kim, **Youngjai Park**, Uncheol Lee, Jeongwook Kwon, Joon-Young Moon, and Bon-Nyeo Koo, “EEG correlates of Delayed Emergence after Remimazolam-Induced Anaesthesia Compared to Propofol”, *medRxiv*, 2024.05.17.24307522 (2024). ([link](#))
 - **Youngjai Park**, Takashi Shimada, Seung-Woo Son, and Hye Jin Park, “Invasion and Interaction Determine Population Composition in an Open Evolving Ecological System”, *Chaos: An Interdisciplinary Journal of Nonlinear Science* **33**, 063151 (2023). ([link](#))
 - **Youngjai Park**, Mi Jin Lee, and Seung-Woo Son, “Motif Dynamics in Signed Directional Complex Networks”, *Journal of the Korean Physical Society* **78**, 535 (2021). ([link](#))
 - Young Jin Kim, Sohee Lim, **Young-Jai Park**, and Seung-Woo Son, “Quantitative Analysis of K-Pop Writers’ Network by Using K-Pop Lyrics”, *New Physics: Sae Mulli* **68**, 700 (2018). ([link](#))
 - **Young-Jai Park** *et al.*, “Korean Football Stylometry by Using the Football Events Networks”, *New Physics: Sae Mulli* **68**, 642 (2018). ([link](#))
 - **Young-Jai Park** *et al.*, “Network Analysis in Korean Presidential Speeches by Using Word2Vec”, *New Physics: Sae Mulli* **67**, 569 (2017). ([link](#))
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Presentations

- **Understanding synchronization considering both the amplitude and phase of oscillators by utilizing the Stuart-Landau model**, 2024 KPS spring conference, Daejeon, Republic of Korea (Apr 2024).
 - **Relative phase dynamics can detect the level of consciousness**, KSCBP 2024, Seoul, Republic of Korea (Feb 2024); The 4th Symposium on Biological Physics, Busan, Republic of Korea (Jan 2024); 2023 IBS CNIR workshop, Suwon, Republic of Korea (Dec 2023); 2023 KPS fall conference, Changwon, Republic of Korea (Oct 2023); KSBNS 2023, Busan, Republic of Korea (Sept 2023); ICBP 2023, Seoul, Republic of Korea (Aug 2023).
 - **What determines a shape of biomass pyramids**, MEEW 2022, Seoul, Republic of Korea (Oct 2022); 2022 KPS fall conference, Busan, Republic of Korea (Oct 2022); RHINO 2022, Tokyo, Japan (Sept 2022).
 - **Invasion and Interaction determine Population Composition in an Open Evolving System**, Frontiers in Theoretical Biophysics, Gyeongju, Republic of Korea (Nov 2021); The 21st Statistical Physics Workshop, Online, Republic of Korea (Aug 2021).
 - **Diversity and Stability on an Open Evolving Network Model**, 2020 KPS fall conference, Online, Republic of Korea (Nov 2020); 2020 MEE workshop, Online, Republic of Korea (Aug 2020).
 - **Evolving open system with Lotka-Volterra dynamics**, RHINO 2020, Online, Republic of Korea (Aug 2020); 2020 KPS spring conference, Online, Republic of Korea (Jul 2020).
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- **Motif Dynamics on Signed Directed Complex Networks**, 2019 KPS fall conference, Gwangju, Republic of Korea (Oct, 2019); The 20th Workshop for Statistical Physics, Byeonsan, Republic of Korea (Aug 2019); 2019 KPS spring conference, Daejeon, Republic of Korea (Apr 2019); Dynamics Days 2019, Evanston, United States (Jan 2019).
 - **Football Stylometry with Football Event Network Analysis**, 2017 KACS autumn conference, Seoul, Republic of Korea (Nov 2017); Korean society of Science & Football, Seoul, Republic of Korea (Jun 2017).
 - **Motifs dynamics on a network model of evolving open system**, 2017 KPS fall conference, Gyeongju, Republic of Korea (Oct 2017); The 2nd Workshop on Self-Organization and Robustness of Evolving Many-Body Systems, Sapporo, Japan (Sept 2017).
 - **Microscopic network structures on a model of evolving open system**, The 19th Workshop for Statistical Physics, Mungyeong, Republic of Korea (Aug 2017).
 - **Growth conditions on a model of evolving open system**, 2017 KPS spring conference, Daejeon, Republic of Korea (Apr 2017).
 - **Network analysis in various systems**, Mini-Workshop on Social Modeling and Simulation and Hands-on Tutorial of OACIS, Kobe, Japan (Mar 2017).
 - **Network analysis in Korean presidential speeches by using Word2Vec**, 2016 KACS autumn conference, Seoul, Republic of Korea (Nov 2016); NSPCS16, Hoegi, Republic of Korea (Jul 2016).
 - **Chronological Changes in the Spoken Word Networks of Korean Presidents**, NetSci2016, Seoul, Republic of Korea (May 2016); 2016 KPS spring conference, Daejeon, Republic of Korea (Apr 2016).
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