

Seok Joo Chae

CONTACT INFORMATION

Department of Mathematical Sciences, KAIST *E-mail:* sjchea@kaist.ac.kr
291 Daehak-ro, Yuseong-gu, Daejeon 34141 Korea *Web:* <http://sjchae1207.github.io>
Biomedical Mathematics Group, IBS
55 Expo-ro, Yuseong-gu, Daejeon 34126 Korea

EDUCATION

KAIST, Daejeon, Republic of Korea

Ph.D. in Mathematical Sciences, Mar. 2017 – Aug. 2024 (expected)
Advisor: Jae Kyoung Kim (jaekkim@kaist.ac.kr)

KAIST, Daejeon, Republic of Korea

B.S. in Mathematical Sciences with *Summa Cum Laude*, Mar. 2013 – Feb. 2017

Hansung Science High School, Seoul, Republic of Korea

Mar. 2011 – Feb. 2013

RESEARCH INTERESTS

Spatiotemporal systems, Model reduction, Circadian rhythms, Immunotherapy, single-cell RNA sequencing

PAPERS

†: (co-)1st author, *: (co-)corresponding author.

One can enter the article web page by clicking the underlined title of a paper.

1. Hyun Kim†, Won Chang, **Seok Joo Chae**, Jong-Eun Park, Minseok Seo, and Jae Kyoung Kim*, scLENS: Data-driven signal detection for unbiased scRNA-seq data analysis, *Nature Communications*, 2024
2. **Seok Joo Chae**†, Dae Wook Kim, Oleg A. Igoshin, Seunggyu Lee, and Jae Kyoung Kim*, Beyond microtubules: The cellular environment at the endoplasmic reticulum attracts proteins to the nucleus, *iScience*, 2024
3. **Seok Joo Chae**†, Dae Wook Kim, Seunggyu Lee, and Jae Kyoung Kim*, Spatially coordinated collective phosphorylation filters spatiotemporal noises for precise circadian timekeeping, *iScience*, 2023
4. Leonid A. Bunimovich†, Chi-Jen Wang, **Seok Joo Chae**, and Benjamin Z. Webb Uncovering Hierarchical Structure in Social Networks Using Isospectral Reductions, *2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 2018

IN REVISION/ IN PREPARATION

1. Seolah Shin†, **Seok Joo Chae**†, Seunggyu Lee*, and Jae Kyoung Kim*, Model reduction in Reaction-diffusion systems (In minor revision for *PLoS Computational Biology*)
2. Sunyoung Lee†, **Seok Joo Chae**†, In-Hwan Jang, Se-Chan Oh, Seok-Min Kim, Soo Yun Lee, Ji Hyun Kim, Jesang Ko, Hang J. Kim, Jae Kyoung Kim*, Tae-Don Kim*, NK killing activity is determined by activator-driven gating. (Under review in *Science Advances*)
3. **Seok Joo Chae**†, Johanna Inhyang Kim†, Hyeontae Jo, Yun Min Song, Saebom Jeon, Sun-Young Moon, Ji-Hye Lee, Sohee Oh, Seockhoon Chung, Jae Kyoung Kim*, Jeong-Hyun Kim*, Predicting the risk of PTSD among a nationwide cohort of firefighters using a machine learning algorithm. (In preparation).

HONORS AND
AWARDS

2022 Best Poster Award, Korean Biological Rhythm Society Symposium
2021 Best Poster Award, Society for Mathematical Biology Annual Meeting
2019 SMB Landahl Travel Grant, Society of Mathematical Biology
2018 SMB Landahl Travel Grant, Society of Mathematical Biology
2018, NIMS-Mathworks MATLAB Challenge, KSIAM
2017 – 2020 TJ Park POSCO Science Fellowship
2016 Best Poster Award, KAIST Undergraduate Research Program Workshop
2016 35th National Undergraduate Mathematics Competition Bronze Prize, KMS
2015-2017 KAIST Presidential Fellowship
2014 Dean’s List Award, College of Natural Sciences, KAIST
2014 33rd National Undergraduate Mathematics Competition Silver Prize, KMS
2013 32nd National Undergraduate Mathematics Competition Gold Prize, KMS
2013 – 2017 The National Scholarship for Science and Engineering (Full Tuition), KOSAF

Abbreviations

KMS: Korean Mathematical Society
KSIAM: Korean Society for Industrial and Applied Mathematics
KOSAF: Korea Student Aid Foundation,

INVITED TALKS

2023 KSIAM Annual Meeting, Special session, Gwangju, Korea
2023 The 8th CIJK International Conference on Mathematical and Theoretical Biology, Jeju, Korea
2019 SMB Annual Meeting, Minisymposium, Montreal, Canada

CONTRIBUTED
TALKS AND
POSTERS

2023 International Congress on Industrial and Applied Mathematics, Contributed Talk, Tokyo, Japan
2023 Society for Mathematical Biology Annual Meeting, Contributed Talk, Columbus, OH, USA
2023 International Conference on Systems Biology, Contributed Talk, Hartford, CT, USA
2023 Korean Biological Rhythm Society Symposium, Poster, Daejeon, Korea
2022 Society for Research on Biological Rhythms, Biennial Meeting Poster, Fernandina Beach, FL, USA
2022 International Conference on Systems Biology, Contributed Talk, Berlin, Germany
2022 Korean Biological Rhythm Society Symposium, Poster, Daejeon, Korea
2021 Korea Society for Mathematical Biology Annual Meeting Poster, Jeju, Korea
2021 Korea Society for Industrial and Applied Mathematics Annual Meeting Poster, Busan, Korea
2021 Korea Society for Mathematical Biology Spring conference, Contributed talk, Virtual
2021 Society for Mathematical Biology Annual Meeting, Poster, Virtual
2021 Korea Society for Industrial and Applied Mathematics Spring conference, Poster, Virtual
2020 Korea Society for Industrial and Applied Mathematics Annual Meeting, Poster, Virtual
2020 Society for Mathematical Biology Annual Meeting, Poster, Virtual
2019 Society for Mathematical Biology Annual Meeting, Poster, Montreal, Canada
2018 Society for Mathematical biology Annual Meeting, Poster, Sydney, Australia
2018 Korea Society for Mathematical Biology Annual Meeting, Contributed Talk, Busan, Korea
2018 IMA Workshop on Ecological and Biological Systems, Poster, Minneapolis, MN, USA
2018 A3 International Workshop For Mathematical and Life Sciences, Poster, Hiroshima, Japan
2016 KAIST Undergraduate Research Program Workshop Daejeon, Korea

TEACHING
EXPERIENCE

High school Research Program (URP) (Spring 2023)
Mentor
Undergraduate Research Program (URP) (Spring 2022)

KAIST

<i>Mentor</i>	KAIST
Calculus II (Fall 2018)	
<i>Student Tutor</i>	KAIST
Numerical Linear Algebra (Fall 2017)	
<i>Teaching Assistant</i>	KAIST
Calculus II (Fall 2017)	
<i>Teaching Assistant</i>	KAIST
Ordinary Differential Equations (Spring 2017)	
<i>Teaching Assistant</i>	KAIST
Statistics for Graduate Students (Spring 2017)	
<i>Teaching Assistant</i>	KAIST
Calculus I (Spring 2016)	
<i>Student Tutor</i>	KAIST
Introduction to Programming (Spring 2015)	
<i>Student Tutor</i>	KAIST
Calculus II (Fall 2014)	
<i>Student Tutor</i>	KAIST
Calculus I (Spring 2014)	
<i>Student Tutor</i>	KAIST

SERVICE

June 13-17, 2021: Support Staff, SMB Annual Meeting
 Host zoom links of sessions for Asia time zone.

Online