

## Hyunwoo Will Kwon

Full-time lecturer

Republic of Korea Air Force Academy

Republic of Korea

willkwon@sogang.ac.kr

### Employment

#### Full-time lecturer

Republic of Korea Air Force Academy

– To be completed on May 31th, 2022.

Cheongju, Korea

Aug. 2019 – Present

### Education

#### Sogang University

M.S. in Mathematics (Advisor: Prof. Hyunseok Kim)

Seoul, Korea

Feb. 2017 – Feb. 2019

Thesis: Dirichlet and Neumann problems for elliptic equations with singular drifts on Lipschitz domains

#### Sogang University

B.S. in Mathematics, *Summa Cum Laude*

Seoul, Korea

Feb. 2013 – Feb. 2017

### Research Interests

Partial differential equations, Real variable methods in harmonic analysis

### Publication and Preprints

1. *Elliptic equations in divergence form with drifts in  $L^2$* , [arXiv:2104.01300 \[math.AP\]](#), to appear in Proc. Amer. Math. Soc, [doi:10.1090/proc/15828](#).
2. *Existence and uniqueness of weak solution in  $W^{1,2+\varepsilon}$  for elliptic equation with drifts in weak- $L^n$  spaces*, [J. Math. Anal. Appl. 500\(1\) \(2021\) 125165](#), [arXiv:2011.07524 \[math.AP\]](#)
3. *Dirichlet and Neumann problems for elliptic equations with singular drifts on Lipschitz domains*, with H. Kim, [arXiv:1811.12619 \[math.AP\]](#), revision submitted.

## Awards, Grants & Honours

BK Plus Scholarship, Sogang University . . . . .	2017
Albatross Fellowship (full funding support, 2 years), Sogang University . . . . .	2017
President prize for highest achievement in academic(1%), Sogang University . . . . .	2015
Dean's List of Natural Science, Sogang University for highest achievement in academic . . . . .	2014
Full Funding Scholarship(7 semesters) from Hyundai Chung Mong-Koo Foundation . . . . .	2013

## Teaching

### Lecturer

Republic of Korea Air Force Academy

Cheongju, Korea  
Sep. 2019 – Present

- 2022-1 Calculus (2 classes), Engineering Mathematics II
- 2021-2 Linear Algebra (Humanities, 2 classes), (Science, 1 class)
- 2021-1 Calculus (Science, 2 classes), Engineering Mathematics I
- 2020-2 Linear Algebra (Humanities), Engineering Mathematics I, Engineering Mathematics II
- 2020-1 Calculus (Humanities), Engineering Mathematics I (2 classes)
- 2019-2 Linear Algebra (Science, 3 classes), Engineering Mathematics I

### Coordinator of Undergraduate Seminar in Sogang Math Honors Club

Sogang University

Seoul, Korea  
Apr. 2017 – Aug. 2017

- 2017-1 Introduction to Hilbert Spaces

### Recitation Instructor and Grader

Sogang University

Seoul, Korea  
Mar. 2017 – Feb. 2019

- 2018-2 Advanced calculus II (Recitation instructor, Grading)
- 2018-1 Advanced calculus I, Theory of complex variable I (Grading)
- 2017-2 Advanced calculus II (Recitation instructor, Grading)
- 2017-1 Advanced calculus I (Recitation instructor)

### Mathematics Tutor

Sogang University

Seoul, Korea  
Mar. 2016 – Dec. 2016

- Worked as a tutor at Sogang Mathematics Learning Center
- Helped several subjects which use mathematics

## Talks in Mathematics

### Elliptic equations with singular drifts on planar domains

Workshop for young mathematicians in Korea

Jan. 2022

### $W^{1,2+\varepsilon}$ -results for elliptic equations with singular drifts in weak $L^n$ -spaces

Contribution talks in Analysis session, 2021 Spring Meeting of KMS

Apr. 2021

### $W^{1,2+\varepsilon}$ -results for elliptic equations with drifts in weak $L^n$ -spaces

KIAS Analysis, PDE & Probability Seminar

Jan. 2021

### Elliptic equations with singular drifts on Lipschitz domains

HA-GMT-PDE seminar at University of Minnesota

Sep. 2020

<b>Elliptic equations with singular drifts on Lipschitz domains</b> KIAS Analysis, PDE & Probability Seminar	Dec. 2019
<b>Neumann problems for elliptic equations with singular drifts on Lipschitz domains</b> Contribution talks in Analysis session, 2019 Spring Meeting of KMS	Oct. 2019
<b>Elliptic equations with singular drifts on Lipschitz domains</b> IBS-CGP Seminar	Jan. 2019
<b><math>L^2</math>-boundedness of the Cauchy integral operator on Lipschitz curves</b> KIAS Analysis&PDE Learning seminar	Oct. 2018
<b>Dirichlet problems for elliptic equations with singular drifts in Lipschitz domains</b> Contribution talks in Analysis session, 2018 Joint Meeting of KMS and DMV	Oct. 2018
<b>Dirichlet problems for elliptic equations with singular drifts in Lipschitz domains</b> Graduate student seminar, Yonsei University	Sep. 2018
<b>The resolution of Hilbert's 19th problem</b> Graduate student seminar, Sogang University	Sep. 2018
<b>Elliptic equations with singular drifts on Lipschitz domains</b> Workshop for students in Analysis and PDE	Jul. 2018

## Work Experience

<b>L<sup>A</sup>T<sub>E</sub>X Technician</b> Freelancer	Seoul, Korea Mar. 2014 – Feb. 2019
<ul style="list-style-type: none"> <li>– Made several books with Kyungmoon Publisher and the others</li> <li>– Technical Editor for Publication of ICM 2014 Seoul, Korea</li> </ul>	

## Academic Services

<b>Organizer of workshop</b> Workshop for young mathematicians in Korea Co-organized with D.-Y. Ko (Rutgers Univ.) and B. Sohn (SNU) : <a href="#">homepage</a>	Cheongju, Korea Jan. 2022
<b>Organizer of workshop</b> Workshop for students in Analysis and PDE Co-organized with H. Kim (Sogang Univ.), Y.-R. Lee (Sogang Univ.) and S. W. Ryoo (SNU) : <a href="#">homepage</a>	Seoul, Korea Jul. 2018
<b>Founder and Organizer of Undergraduate Mathematics Seminar</b> United Mathematics club in Korea : <a href="#">Stupid Mathematics Seminar</a>	Seoul, Korea Feb. 2014 – Feb. 2016

## Conference and Workshop Attended (will attend)

- Intensive lectures on the Cauchy problems for quasilinear PDEs by Prof. Sung-Jin Oh, Online via Zoom, Jul. 26, 2021 – Jul. 30, 2021.
- Yonsei Ewha Sogang Seminar on Analysis & PDEs, Online via Zoom, Jan. 20, 2021.
- Workshop on Harmonic Analysis Techniques for PDEs, JBNU, Jeonju, Korea, Feb. 13, 2019 – Feb. 14, 2019.
- The 3rd meeting of Young PDE researchers in PDEs, KIAS, Seoul, Korea, Dec. 13, 2018 – Dec. 14, 2018.
- Workshop for students in Analysis and PDE(as a organizer and speaker), Sogang Univ., Seoul, Korea, Jul. 12, 2018 – Jul. 13, 2018.
- Dynamics of partial differential equations, KAIST, Daejeon, Jun. 27, 2018 – Jun. 29, 2018.
- 2018 Korea PDE School #8, NIMS, Daejeon, Jan. 29, 2018 – Feb. 02, 2018.
- Minicourse: General relativity in spherical symmetry, KIAS, Apr. 07, 2017 – Apr. 28, 2017.
- Lecture Series on various topics in PDEs, KIAS, Seoul, Korea, Feb. 13, 2017 – Feb. 17, 2017 / Feb. 20, 2017 – Feb. 24, 2017.
- 2017 Korea PDE School #7, NIMS, Daejeon, Jan. 16, 2017 – Jan. 20, 2017.
- 2016 CMC Foundations for Mathematical Challenge: Solitons in the Korteweg-de Vries equations, inverse scattering approaches, KIAS, Seoul, Korea, Aug. 22, 2016 – Aug. 26, 2016.
- IBS-CGP Mathematics Festival 2016, IBS Center for Geometry and Physics, Pohang, Jul. 18, 2016 – Jul. 22, 2016.
- 7th Workshop on PDEs of Mathematical Physics, UNIST, Ulsan, Jan. 14, 2016 – Jan. 16, 2016.

## References

Hyunseok Kim  
Professor, Department of Mathematics,  
Sogang University,  
Seoul 04107, Korea  
[kimh@sogang.ac.kr](mailto:kimh@sogang.ac.kr)

Pak Tung Ho  
Professor, Department of Mathematics,  
Sogang University,  
Seoul 04107, Korea  
[ptho@sogang.ac.kr](mailto:ptho@sogang.ac.kr)

Doyoon Kim  
Professor, Department of Mathematics,  
Korea University,  
Seoul 02841, Korea  
[doyoon\\_kim@korea.ac.kr](mailto:doyoon_kim@korea.ac.kr)

*Updated: January 4, 2022*