

# Jongho Park | Curriculum Vitae

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## Personal Details

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Date of birth: 1990 December 08  
Place of birth: Seoul, Republic of Korea  
Nationality: Korean  
Languages: Korean (native), English (fluent), Mandarin (fragmentary)  
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## Education

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<b>Seoul National University</b>	<b>Seoul, Korea</b>
<i>Ph.D. in Astronomy</i>	08/2019
<i>Advisor: Prof. Sascha Trippe</i>	
<i>Thesis: A multiscale view of AGN jets: from the formation and acceleration to high energy outbursts</i>	
<i>B.S. in Astronomy, cum laude</i>	02/2013

## Employment

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<b>Academia Sinica Institute of Astronomy &amp; Astrophysics (ASIAA)</b>	<b>Taipei, Taiwan</b>
<i>Postdoctoral Fellow</i>	09/2019 – Present
<i>Advisor: Dr. Keiichi Asada, Dr. Masanori Nakamura, Dr. Geoffrey Bower</i>	

## Research Experience

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<b>National Astronomical Observatory of Japan</b>	<b>Mitaka, Tokyo, Japan</b>
<i>Visiting Student Research Collaborator</i>	01/2017 (1 month)
<i>Mentor: Dr. Motoki Kino</i>	
<b>Mizusawa VLBI Observatory</b>	<b>Mizusawa, Iwate, Japan</b>
<i>Visiting Student Research Collaborator</i>	02/2017 (1 month), 08/2018 (1 week)
<i>Mentor: Dr. Kazuhiro Hada</i>	

## Scholarships and Fellowships

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<b>Academia Sinica Postdoctoral Fellowship</b>	
<i>Academia Sinica</i>	2019–2020
<i>Project name: “Understanding the Formation, Collimation, and Acceleration Mechanism of AGN Jets”</i>	

<b>Global Ph.D. Fellowship</b> (Grants obtained as a PI: \$28,000/yr) National Research Foundation of Korea Project name: “The plasma physics of Active Galactic Nuclei”	2014–2019
<b>Scholarship for Superior Academic Performance</b> Brain Korea 21	2013–2014
<b>Mirae Asset Scholarship</b> Full tuition awarded by Mirae Asset Foundation	2010
<b>National Scholarship For Science and Engineering</b> Full tuition awarded by National Research Foundation of Korea	2009 – 2012

## Publications (ADS Link)

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### Refereed Journal Articles – First Authorships.....

8. *Kinematics of the M87 Jet in the Collimation Zone: Gradual Acceleration and Velocity Stratification*  
**Park, J.**, Hada, K., Kino, M., et al. 2019, ApJ, 887, 147
7. *Ejection of Double knots from the radio core of PKS 1510–089 during the strong  $\gamma$ -ray flares in 2015*  
**Park, J.**, Lee, S.-S., Kim, J.-Y., et al. 2019, ApJ, 877, 106
6. *Faraday Rotation in the Jet of M87 Inside the Bondi Radius: Indication of Winds from Hot Accretion Flows Confining the Relativistic Jet*  
**Park, J.**, Hada, K., Kino, M., et al. 2019, ApJ, 871, 257
5. *Revealing the Nature of Blazar Radio Cores through Multifrequency Polarization Observations with the Korean VLBI Network*  
**Park, J.**, Kam, M., Trippe, S., et al. 2018, ApJ, 860, 112
4. *The Long-Term Centimeter Variability of Active Galactic Nuclei: a New Relation between Variability Timescale and Accretion Rate*  
**Park, J.**, & Trippe, S. 2017, ApJ, 834, 157
3. *No asymmetric outflows from Sagittarius A\* during the pericenter passage of the gas cloud G2*  
**Park, J.**, Trippe, S., Krichbaum, T. P., et al. 2015, A&A, 576, L16
2. *Radio Variability and Random Walk Noise Properties of Four Blazars*  
**Park, J.**, & Trippe, S. 2014, ApJ, 785, 76
1. *Multiple Emission States in Active Galactic Nuclei*  
**Park, J.**, & Trippe, S. 2012, JKAS, 45, 147

### Papers in Preparation.....

1. *Generalized Polarization CALibration of VLBI data (GPCAL)*  
**Park, J.**, Byun, D., Yoon, Y., et al. 2019, *in prep.*
2. *Linear Polarization and Faraday Rotation in the radio core of M87*  
**Park, J.**, Nakamura, M., Asada, K., et al. 2019, *in prep.*

### Refereed Journal Articles – Co-Authorships.....

14. *Exploring the Morphology and Origins of the 4C 38.41 Jet*  
Algaba, J. C., Rani, B., Lee, S.-S., Kino, M., **Park, J.**, Kim, J.-Y. 2019, ApJ, 886, 85

13. *Jet Kinematics of the Quasar 4C+21.35 from Observations with the KaVA Very Long Baseline Interferometry Array*  
Lee, T., Trippe, S., Kino, M., ..., **Park, J.**, et al. 2019, MNRAS, 486, 2412
12. *Source-Frequency Phase-Referencing Observation of AGNs with KaVA using Simultaneous Dual-Frequency Receiving*  
Zhao, G.-Y., Jung, T., Sohn, B. W., ..., **Park, J.**, et al. 2019, JKAS, 52, 23
11. *Exploring the Nature of the 2016  $\gamma$ -ray Emission in the Blazar 1749+096*  
Kim, D., Trippe, S., Lee, S.-S., ..., **Park, J.**, et al. 2018, MNRAS, 480, 2324
10. *Exploring the Variability of the Flat-spectrum Radio Source 1633+382. II. Physical Properties*  
Algaba, J.-C., Lee, S.-S., Rani, B., ..., **Park, J.**, et al. 2018, ApJ, 859, 128
9. *KVN Observations Reveal Multiple  $\gamma$ -ray Emission Regions in 3C 84?*  
Hodgson, J. A., Rani, B., Lee, S.-S., ..., **Park, J.**, et al. 2018, MNRAS, 475, 368
8. *Exploring the Variability of the Flat-spectrum Radio Source 1633+382. I. Phenomenology of the Light Curves*  
Algaba, J.-C., Lee, S.-S., Kim, D., ..., **Park, J.**, et al. 2018, ApJ, 852, 30
7. *The Power of Simultaneous Multi-frequency Observations for mm-VLBI: Beyond Frequency Phase Transfer*  
Zhao, G.-Y., Algaba, J.-C., Lee, S.-S., ..., **Park, J.**, et al. 2018, AJ, 155, 26
6. *The Millimeter-Radio Emission of BL Lacertae during Two  $\gamma$ -ray Outbursts*  
Kim, D., Trippe, S., Lee, S.-S., **Park, J.**, et al. 2017, JKAS, 50, 167
5. *Pilot KaVA monitoring on the M 87 jet: Confirming the inner jet structure and superluminal motions at sub-pc scales*  
Hada, K., **Park, J.**, Kino, M., et al. 2017, PASJ, 69, 71
4. *Interferometric Monitoring of  $\gamma$ -ray Bright AGNs. I. The Results of Single-epoch Multifrequency Observations*  
Lee, S.-S., Wajima, K., Algaba, J.-C., ..., **Park, J.**, et al. 2016, ApJS, 227, 8
3. *PAGaN II: The Evolution of AGN Jets on Sub-Parsec Scales*  
Oh, J., Trippe, S., Kang, S., ..., **Park, J.**, et al. 2015, JKAS, 48, 299
2. *PAGaN I: Multi-Frequency Polarimetry of AGN Jets with KVN*  
Kim, J., Trippe, S., Sohn, B. W., ..., **Park, J.**, et al. 2015, JKAS, 48, 285
1. *Interferometric Monitoring of  $\gamma$ -ray Bright Active Galactic Nuclei II: Frequency Phase Transfer*  
Algaba, J.-C., Zhao, G.-Y., Lee, S.-S., ..., **Park, J.**, et al. 2015, JKAS, 48, 237

**Non-Refereed Journal Articles – Co-Authorships**.....

2. *EAVN observations along with EHT for M87 in 2017*  
Cui, Y., Hada, K., Honma, M., ..., **Park, J.**, et al. 2018, PoS (EVN2018), 096
1. *White Paper on East Asian Vision for mm/submm VLBI: Toward Black Hole Astrophysics down to Angular Resolution of  $1R_S$*   
Asada, K., Kino, M., Honma, M., ..., **Park, J.**, et al. 2017, [arXiv:1705.04776](https://arxiv.org/abs/1705.04776)

## Observatories Used

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Very Large Array (VLA)

Karl G. Jansky VLA (JVLA)

Korean VLBI Network (KVN)

KVN and VERA Array (KaVA)

East Asia VLBI Network (EAVN)

High Sensitivity Array (HSA)

Very Long Baseline Array (VLBA)

Global Millimeter VLBI Array (GMVA)

Atacama Large Millimeter Array (ALMA)

Fermi Large Array Telescope (*Fermi*-LAT)

University of Michigan Radio Astronomy Observatory (UMRAO) 26meter Radio Telescope

## Successful Proposals as PI

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**VLBA Semester 2020B Proposal VLBA/20B-116 for 64 hours**

: Towards a complete understanding of jet acceleration & energy dissipation in M87

**EAVN Semester 2020A Proposal EAVN20A-143 for 54 hours**

: Investigating the peculiar jet collimator NGC 315

**KVN Semester 2020A Proposal KVN20A-VLBI-144 for 75 hours**

: The Global VLBI Polarimetry Campaign for M87 in 2020

**VLBA Semester 19B Proposal VLBA/19B-143 for 12 hours**

: Investigating the peculiar jet collimator NGC 315

**HSA Semester 19B Proposal VLBA/19B-108 for 36 hours**

: Mapping the Faraday rotation and the magnetic field of the M87 jet

**EAVN Semester 2019B Proposal EAVN19B-094 for 36 hours**

: Investigating the peculiar jet collimator NGC 315

**KVN Semester 2019B Proposal KVN19B-VLBI-095 for 68 hours**

: Probing the Faraday rotation near the jet base of M87

**KaVA Semester 2018A Proposal KaVA18A-01 for 48 hours**

: Solving the puzzling kinematics of the flat spectrum radio quasar 1928+738

**KVN Semester 2018A Proposal KVN18A-VN-01 for 96 hours**

: Unveiling the hidden core polarization in 3C 273

**KaVA Semester 2017B Proposal KaVA17A-01 for 36 hours**

: Solving the puzzling kinematics of the flat spectrum radio quasar 1928+738

**KVN Semester 2017B Proposal KVN17B-VN-01 for 48 hours**

: Revealing the Nature of Blazar Radio Cores through Multi-frequency Polarization Observations with ALMA and KVN

**KaVA Semester 2017A Proposal KaVA17A-01 for 40 hours**

: Solving the puzzling kinematics of the flat spectrum radio quasar 1928+738

**ALMA Cycle 4 Proposal 2016.1.00112.S for 3 hours**

: Probing the magnetic fields in the jet base of the gamma-ray bright blazar PKS 1510-08

## Selected Conferences and Seminars

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21. Colloquium, *Acceleration and Collimation of the M87 Jet*  
Academia Sinica Institute of Astronomy and Astrophysics (ASIAA), Taipei, Taiwan, Jan 15, 2020
20. Contributed Poster, *How to reduce the discrepancy in the D-Terms of the 2017 M87 data obtained by different softwares?*  
The Event Horizon Telescope Collaboration Meeting 2019, Naniloa Hotel, Hilo, Hawaii, USA, Dec 2–6, 2019
19. Contributed Talk, *Kinematics of the M87 jet in the collimation zone: gradual acceleration and velocity stratification*  
The Event Horizon Telescope Collaboration Meeting 2019, Naniloa Hotel, Hilo, Hawaii, USA, Dec 2–6, 2019
18. Contributed Talk, *M87 Polarization and RM at low frequencies*  
The Event Horizon Telescope Collaboration Meeting 2019, Naniloa Hotel, Hilo, Hawaii, USA, Dec 2–6, 2019
17. Contributed Talk, *A new strategy for polarization calibration of VLBI data and an improved view of linear polarization of AGN jets at millimeter wavelengths*  
12th East Asian VLBI Workshop, Ibaraki University, Mito, Ibaraki, Japan, Sep 23–27, 2019
16. Invited Talk, *Faraday Rotation in the Jet of M87 Inside the Bondi Radius: Indication of Winds from Hot Accretion Flows Confining the Relativistic Jet*  
EATING VLBI Workshop 2019, CNS Research Area, Bologna, Italy, Apr 15–17, 2019
15. Colloquium, *Faraday Rotation in the Jet of M87 Inside the Bondi Radius: Indication of Winds from Hot Accretion Flows Confining the Relativistic Jet*  
Academia Sinica Institute of Astronomy and Astrophysics (ASIAA), Taipei, Taiwan, Jan 17, 2019
14. Contributed Talk, *Substantial Winds from the accreting supermassive black hole in M87 revealed by Faraday rotation observations*  
14th European VLBI Network Symposium & Users Meeting, Granada, Spain, Oct 8–11, 2018

13. Contributed Talk, *Detection of a Moving Spine-Sheath Jet Structure after a VHE  $\gamma$ -ray Flare in PKS 1510-089 in 2015*  
East Asian VLBI Workshop 2018, YongPyong Resort, PyeongChang, Korea, Sep 04–07, 2018
12. Contributed Talk, *Substantial Winds from Hot Accretion flows Confining the Relativistic Jet of M87*  
IAU Symposium 342 – Perseus in Sicily: from Black Hole to Cluster Outskirts, Noto, Sicily, Italy, May 13–18, 2018
11. Invited Talk, *Substantial Outflows from Hot Accretion flows Confining the Relativistic Jet of M87*  
Dawn of a New Era for Black Hole Jets in Active Galaxies, Tohoku University, Sendai, Japan, Jan 25–27, 2018
10. Contributed Talk, *Revealing the Nature of Blazar Radio Cores through Multi-Frequency Polarization Observations with KVN*  
East Asia To Italy: Nearly Global (EATING) VLBI Workshop 2017, Hotel Bareve, Jeju, Korea, Oct 30–Nov 1, 2017
9. Colloquium, *Revealing the Nature of Blazar Radio Cores through Multi-Frequency Polarization Observations with KVN and ALMA*  
Korea Astronomy and Space Science Institute (KASI), Daejeon, Korea, Aug 31, 2017
8. Contributed Talk, *Revealing the Nature of Blazar Radio Cores through Multi-Frequency Polarization Observations with KVN*  
When Brandeis met Jansky: Astrophysics and beyond, Brandeis University, Boston, USA, Jun 28–30, 2017
7. Invited Talk, *Probing the Velocity Field in the Inner Region of M87 Jets with a KaVA Large Program: Early Science Results*  
Challenges of AGN Jets, National Astronomical Observatory of Japan (NAOJ), Mitaka, Tokyo, Japan, Jan 17–20, 2017
6. Contributed Talk, *Probing the Velocity Field in the Inner Region of M87 Jets with a KaVA Large Program: Early Science Results*  
9th East Asian VLBI Workshop, Forest Moon Hotel, Guiyang, Guizhou, China, Nov 07–11, 2016
5. Contributed Talk, *Probing the Velocity Field in the Inner Region of M87 Jets with a KaVA Large Program: Early Science Results*  
East-Asia AGN Workshop 2016, Seoul National University, Seoul, Korea, Sep 22–24, 2016
4. Poster, *Probing the Velocity Field in the Inner Region of M87 Jets with a KaVA Large Program: Early Science Results*  
M87 Workshop: Towards the 100th Anniversary of the Discovery of Cosmic Jets, ASIAA, Taipei, Taiwan, May 23–27, 2016
3. Contributed Talk, *The plasma physics of Active Galactic Nuclei (PAGaN) : Polarimetry with KVN*  
8th East Asian VLBI Workshop, Hokkaido University, Sapporo, Hokkaido, Japan, July 6 - 10, 2015
2. Contributed Talk, *Radio Variability and Random Walk Noise Properties of Four Blazars*  
12th Asia-Pacific Regional IAU Meeting (APRIM), DCC, Daejeon, Korea, Aug 18–22, 2014

1. Poster, *Multiple Emission States in Active Galactic Nuclei*  
East-Asia AGN Workshop 2013, Hotel BlueWave Inn Sapporo, Sapporo, Hokkaido, Japan,  
Aug 20–23, 2013

## Computer Skills

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**Programming Language:** Python, IDL, AIPS, Difmap, CASA

## Teaching Experience

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- *Man and the Universe*, Teaching Assistant for Prof. Sascha Trippe, Spring 2014
- *Man and the Universe*, Teaching Assistant for Prof. Hyung-Mok Lee, Fall 2013
- *Astronomical Lab Experiments*, Teaching Assistant for Prof. Woong-Tae Kim, Spring 2013

## Service

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### Conferences:

- EHT Imaging Workshop 2020, a remote workshop, May 11–15, 2020 (SOC)

### Collaborations:

- EHT Data Access, Analysis, and Publication Policy (DAAPP) Task Force committee

## Mentoring

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- Mentor, Ph. D. student Kunwoo Lee at Seoul National Univ. for his project "Jet collimation and acceleration of the flat spectrum radio quasar 1928+738" since 2017

## Other Experience

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**Military Service:** Served as a Technical Research Personnel in the Republic of Korea Army, 2016-2019

### Departmental Service:

- Full-time lecturer for a short course on *VLBI Polarization Data Reduction*, SNU, Nov 17, 2017
- President of Graduate Students in SNU Astronomy Department, 2016
- SNU Astronomy Journal Club Participants, 2013–2016
- President of the club "Amateur Astronomy Association (AAA)" in SNU (~100 new members every year), 2010–2011

### Outreach:

- Volunteered for 2019 Academia Sinica Open House, Oct 26, 2019
- Volunteered multiple times (>50 times) for Astronomy Open House, 2009–2018

## Academic References

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- **Prof. Sascha Trippe**  
[trippe@astro.snu.ac.kr](mailto:trippe@astro.snu.ac.kr)  
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Seoul National University  
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- **Dr. Masanori Nakamura**  
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- **Prof. Mareki Honma**  
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Astrophysics  
EHT Project Scientist