

# SungWon Kwak

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Curriculum Vitae

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Date of Birth: 1991.02.25

Citizenship: Republic of Korea

Language: Korean (Native), English (Fluent)

## [Education]

- Ph.D.** in Astronomy and Astrophysics  
at the University of Rome, La Sapienza and Tor Vergata 2019-2022  
*Project: Numerical Simulations on the Chemical Evolution of the Milky Way (Advisor: Prof. Giuseppe Bono)* (expected)
- M.S.** in Astronomy at Seoul National University 2014-2016  
*Thesis: Origin of Non-Axisymmetric Features of dE Galaxies in the Virgo Cluster (Advisor: Prof. Woong-Tae Kim)*
- B.S.** in Astronomy 2009-2013  
**B.S.** in Physics at the University of Washington

## [Positions and Training]

- Research Assistant at Seoul National University 2019
- Mandatory Military Service at Korea Astronomy and Space Science Institute 2016-2019
- Internship at CERN 2014  
University of Michigan-CERN Research Abroad Program

## [Undergraduate Research Experience]

- SPH Simulation: Stability of Protoplanetary Disk 2013  
with Prof. Thomas Quinn
- Finding Superimposed High Redshift Spectra Using AstroML 2013  
with Dr. Jake Vanderplas
- ATLAS-CERN Inner Tracker Upgrade 2013  
with Prof. Shih-Chieh Hsu
- Radio Astronomy  
with Prof. Woodruff Sullivan  
1) Hydrogen Distribution of the Galactic Plane 2012-2013  
2) Estimation of the Moon's Temperature  
3) Continuum Map of the Galactic Plane

## [Scholarships]

- PhD Fellowship for the AASS program in Rome 2019-2022
- Kim In-Ha Scholarship 2015-2016
- Brain Korea 21 Scholarship 2014-2016
- Erasmus Mundus Scholarship for 2 years, Category A (offered) 2014-2016
- Scholarship for the CERN internship by Richard Lounsbery Foundation 2014

## [Programming and Simulations]

- Data Analysis and Visualization using Python mainly and C++
- Numerical Simulations using ChaNGa, GIZMO, Gadget2 & AREPO
- Astronomical Image Analysis using IRAF
- Engineering Modeling using Solidworks

## [Publications]

(5) Effects of Cluster-Group Merger on Bar Formation and Star Formation Rate of Infalling Disk Galaxies

**Kwak, SungWon;** Kim, Woong-Tae; Quinn, Thomas R. (in prep.)

(4) Origin of Nonaxisymmetric Features of Virgo Cluster Early-type Dwarf Galaxies. II. Tidal Effects on Disk Features and Stability

**Kwak, SungWon;** Kim, Woong-Tae; Rey, Soo-Chang; & Quinn, Thomas R., ApJ, 887, 139K (2019)

(3) The Geometric Albedo of (4179) Toutatis Estimated From KMTNet DEEP-SOUTH Observation

Bach, Yoonsoo P., **et al.**, JKAS, 52, 71B (2019)

(2) Effects of Gas on Formation and Evolution of Stellar Bars and Gaseous Nuclear Rings in Disk Galaxies

Seo, Woo-Young; Kim, Woong-Tae; **Kwak, SungWon;** Hsieh, Pei-Ying; Han, Cheongho; & Hopkins, Phil F., ApJ, 872, 5 (2019)

(1) Origin of Non-axisymmetric Features of Virgo Cluster Early-type Dwarf Galaxies. I. Bar Formation and Recurrent Buckling

**Kwak, SungWon;** Kim, Woong-Tae; Rey, Soo-Chang; & Kim, Suk, ApJ, 839, 24 (2017)

## [Talks and Posters]

- Poster: Formation of Bar and Spirals of Infalling Dwarf Galaxies in Clusters

**Kwak, SungWon;** Kim, Woong-Tae; Rey, Soo-Chang; & Quinn, Thomas

@ The 8<sup>th</sup> KIAS Workshop on Cosmology and Structure Formation in 2018 (Seoul, Korea)

- E-Poster: Are Disky Dwarf Galaxies Unstable to Formation of Bars and Spirals?

**Kwak, SungWon;** Kim, Woong-Tae

@ 334th IAU Meeting 2018 (Vienna, Austria)

- Talk: Bar Formation and Recurrent Buckling Instability

**Kwak, SungWon**

@ Korean Numerical Astrophysics Meeting in Sept. 2017 (Daejeon, Korea)

- Talk: Non-axisymmetric Features of Dwarf Elliptical Galaxies

**Kwak, SungWon;** Kim, Woong-Tae; Rey, Soo-Chang; & Kim, Suk

@ id:GC-24, Korean Astronomical Society Meeting 2016 (Busan, Korea)

- Talk: Origin of Non-axisymmetric Features of dEs in the Virgo Cluster

**Kwak, SungWon;** Kim, Woong-Tae; Rey, Soo-Chang; & Kim, Suk

@ id:202.08, 228th AAS Meeting 2016 (San Diego, CA, USA)

- Poster: Bulge Kinematics of Giant Low Surface Brightness Galaxies

Schmitz, D.; Yoachim, Peter; Loebman, S.; Debattista, V. P.; **Kwak, S.**

@ id:453.06, 223th AAS Meeting 2014 (Washington, D.C., USA)

- Poster: IFU Observations of Giant Low Surface Brightness Galaxies

Yoachim, Peter; Schmitz, D.; Loebman, S.; Debattista, V. P.; **Kwak, S.**

@ id:453.05, 223th AAS Meeting 2014 (Washington, D.C., USA)