Kyuhyoun Cho

PERSONAL INFORMATION

Affiliation	**SETI Institute** 339 Bernardo Ave, Suite 200, Mountain View, CA 94043, USA **Lockheed Martin Solar and Astrophysics Laboratory (LMSAL)** 3251 Hanover St, Palo Alto, CA 94306, USA
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EMPLOYMENT

2022. 3. -	**Researcher** *Lockheed Martin Solar and Astrophysics Laboratory* *3251 Hanover St, Palo Alto, CA 94306, USA*
2019. 3. - 2022. 2	**Researcher** *Astronomy Program, Department of Physics and Astronomy, Seoul National University* *1 Gwanak-ro, Gwanak-gu, Seoul, 08826, South Korea*

EDUCATION

2011. 3. - 2019. 2.	**PhD from a Master and Doctoral integrated program in Astronomy** *Seoul National University* Title of Thesis: **"A Study of Oscillations and Waves in Sunspots"**
2007. 3. - 2010. 6.	**Military Service** *Discharged from Republic of Korea Air Force as 1st Lieutenant*
2003. 3. - 2007. 2.	**BSc in Astronomy** *Seoul National University*

HONORS AND AWARDS

2020. 10.	**Best Oral Presentation** *The 2020 fall Korean Astronomy and Space science Society meeting*
2020. 6.	**Creativity & Challenge research fellowship** *- National Research Foundation of Korea (~42,000 USD/yr)* *- Project name: "Exploration of Sub-surface Structure of Sunspots Using Umbral Oscillations"*

2016. 10.	**Morning star prize** *Awarded from Korea Astronomy Society (KAS)*
2013. 9. - 2014. 2.	**Gwanak Society Scholarship** *Full tuition awarded by Gwanak Society*
2011. 9. - 2012. 2.	**Lotte Scholarship** *Full tuition awarded by Lotte Foundation*
2003. 3. - 2007. 2.	**National Scholarship for Science and Engineering** *Full tuition awarded by National Research Foundation of Korea*

RESEARCH INTERESTS

- Disambiguation of multi-slit spectra and diffraction pattern removal
- Nanoflare signature in the transition region and non-thermal velocity studies
- Oscillation and wave phenomena in sunspots
- Determination of 3-D coronal structure using solar rotational tomography
- Coronagraph filter system for measuring coronal electron temperature and wind speed

SELECTED LIST OF PUBLICATIONS

Google Scholar Link / ORCID link

8 **On the Nature of Nonthermal Broadening of Spectral Lines Observed by IRIS**
***Cho, K.**, De Pontieu, B., Testa, P., 2024, ApJ, 975, 33*

7 **A Statistical Study of IRIS Observational Signatures of Nanoflares and Nonthermal Particles**
***Cho, K.**, Testa, P., De Pontieu, B., Polito, V., 2023, ApJ, 934, 143*

6 **Investigation of the subsurface structure of a sunspot based on the spatial distribution of oscillation centers inferred from umbral flashes**
***Cho, K.,** Chae, J., Madjarska, M. S., 2021, A&A, 656, 86*

5 **The Application of the Filtered Backprojection Algorithm to the Solar Rotational Tomography**
***Cho, K.**, Chae, J., Kwon, R.-Y., Bong, S.-C., Cho, K.-S., 2020, ApJ, 895, 55*

4 **Source Depth of Three-minute Umbral Oscillations**
***Cho, K.**, Chae, J., 2020, ApJl, 892L, 31*

3 **The Observational Evidence for the Internal Excitation of Sunspot Oscillations Inferred from the Fe I 5435 Å line**
***Cho, K.**, Chae, J., Lim, E.-K., Yang, H., 2019, ApJ, 879, 67*

2 **Strong Blue Asymmetry in Hα Line as a Preflare Activity**
Cho, K., *Lee, J., Chae, J., Wang, H., Ahn, K., Yang, H., Lim, E.-K., Maurya, R. A., 2016, SoPh, 291, 2391*

1 **A New Method to Determine Temperature of CMES Using a Coronagraph Filter System**
Cho, K., *Chae, J., Lim, E.-K., Cho, K.-S., Bong, S-C., Yang, H., 2016, JKAS, 49, 45*

SELECTED CONFERENCES AND SEMINARS

Invited talk	Umbral flashes in the solar chromosphere and transition region *45th COSPAR scientific Assembly, Busan, Korea, Jul 20, 2024*
Invited talk	Generation of umbral oscillations and subsurface structure of sunspots *Hinode-15 / IRIS-12 meeting, Prague, Czech, Sep 20, 2022*
Invited talk	Umbral oscillations and magneto-convection inside sunspots *18th Asia Oceania Geosciences Society meeting, Online (Singapore), Aug 04, 2021*
Invited talk	Recent studies on the umbral oscillations in SNU Solar Astronomy group *SAIHPA meeting, Online (Calicut/India), Mar 11, 2021*
Invited talk	What temperature do we observe from CODEX? *The Korean Space Science Society (KASS) Fall Meeting, Jeju, Korea, Oct 30, 2020*

TEACHING EXPERIENCE

2019 / 2021. 6.	Lecture for the Korean representative of the International Astronomical Olympiad
2013. 9. - 2013. 12.	Stellar Atmosphere (Teaching Assistant)
2013. 3. - 2013. 6.	Astronomy Laboratory (Teaching Assistant)
2012. 3. - 2012. 6.	Space Environment (Teaching Assistant)

OTHER EXPERIENCE

2024. 9	IRIS, Hinode joint observation with SST
2016 / 2017 / 2018. 6.	IRIS joint observation with GST/BBSO (Co-PI)
2011 / 2015. 6.	GST/BBSO observation (Co-PI)
2014. 3. - 2014. 12.	Student for research and training in Korea Astronomy and Space Science Institute

2014. 3. - 2014. 10.	Representative of Graduated Students Colloquium at the Seoul National University Astronomy Department
2014. 3. - 2014. 10.	Representative of Graduated Students Colloquium at the Seoul National University Astronomy Department
2014. 2.	Part-time lecturer for a short course on "An Introduction to IDL Programming for Undergraduates"
2011. - 2014.	Volunteered multiple times for Astronomy Open House

MEMBERSHIP

- Korean Astronomical Society
- The Korean Space Science Society
- American Geophysical Union
- American Astronomical Society

COMPUTER SKILLS

- IDL and Python

ACADEMIC REFERENCE

- Dr. Bart De Pontieu (bdp@lmsal.com)
  Lockheed Martin Solar & Astrophysics Laboratory, Palo Alto
  3251 Hanover St., Org. A021S, Bldg. 252, CA 94304
- Prof. Jongchul Chae (jcchae@snu.ac.kr)
  Department of Physics and Astronomy, Seoul National University
  1 Gwanak-ro, Gwanak-gu, Seoul, 08826, South Korea
- Dr. Maria S. Madjarska (madjarska@mps.mpg.de)
  Max-Planck Institute for Solar System Research,
  Justus-von-Liebig-Weg 3 37077 Göttingen, Germany