

Kyung Ha Lee

Phone: +82-31-290-7042, Email: khlee54@skku.edu

Academic Activities

Sungkyunkwan University, Department of Physics, Suwon, South Korea
Assistant Professor Sep. 2020 – Present
Relevant Area of Science: Gravitational Wave Research (LIGO)

Stanford University, Applied Physics, California, United States
Postdoc in Applied Physics Feb. 2019 – Aug. 2020
Research Group: Ginzton Laboratory, Martin Fejer Group
Relevant Area of Science: Gravitational Wave Research (LIGO)

University of Glasgow, School of Physics and Astronomy, Glasgow, United Kingdom
Ph.D. in Physics Oct. 2014 – Jan. 2019
Research Group: Institute for Gravitational Research (IGR)
Relevant Area of Science: Gravitational Wave Research (LIGO)

Seoul National University, School of Physics and Astronomy, Seoul, South Korea
Researcher Jun. 2012 – May. 2013
Research Group: RENO Collaboration
Relevant Area of Science: Neutrino Oscillation Experiment

California Institute of Technology (Caltech), Department of Physics, Pasadena, CA. USA
B.S. in Physics with Honor Oct. 2007 – Jun. 2011
Relevant Area of Science: Gravitational Wave Research (LIGO)

Awards and Scholarship

- Scottish Universities Physics Alliance (SUPA) Prize Studentship (2014)
 - o This studentship is for 3.5 years and provides annual maintenance allowance, annual RTSG (Research Training Support Grant), and full cost of university tuition fees.
- Thomson Experimental Prize (2017)
 - o This prize was founded in 1869 by William Thomson later created 1st Baron Kelvin. It is awarded on the recommendation of the Professor of Natural Philosophy to students who have shown their zeal and ability in experimental investigations in the physical laboratory.
- University of Glasgow Postgraduate Research Conference Best Speaker of the Day (2017)
- Special Breakthrough Prize in Fundamental Physics – Recipients: GW Detection Paper Authors (2016)
- Gruber Cosmology Prize – Recipients: GW Detection Paper Authors (2016)
- UK Royal Astronomical Society 2017 Group Achievement Award in Astronomy – Recipients: LSC Members (2017)
- Physics World Breakthrough of the Year – Recipients: LSC Members (2016)
- Science Magazine Breakthrough of the Year – Recipients: LSC Members (2016)
- Princess of Asturias Award for Technical and Scientific Research – Recipients: LSC Members (2017)
- Royal Astronomical Society RAS Group Achievement Award ‘A’ – Recipients: LSC Members (2017)

Selected Publications

- K. Lee, ...A. Cumming.** Improved fused silica fibres for the advanced LIGO monolithic suspensions, **Classical and Quantum Gravity** 36, 185018, 2019
- A. Heptonstall, ...**K. Lee**, ...K.V.Tokmakov. Enhanced characteristics of fused silica fibers using laser polishing, **Classical and Quantum Gravity** 31, 105006, 2014
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Observation of Gravitational Waves from a Binary Black Hole Merger, **Physical Review Letters** 116, 061102, 2016

- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), GW51226: Observation of Gravitational Waves from a 22-Solar-Mass Binary Black Hole Coalescence, **Physical Review Letters** 116, 241103, 2016
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Properties of Binary Black Hole Merger GW150914, **Physical Review Letters** 116, 241102, 2016
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Tests of General Relativity with GW150914, **Physical Review Letters** 116, 221101, 2016
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Characterization of transient noise in Advanced LIGO relevant to gravitational wave signal GW150914, **Classical and Quantum Gravity** 33, 134001, 2016
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Results of the deepest all-sky survey for continuous gravitational waves on LIGO S6 data running on the Einstein@Home volunteer distributed computing project, **Physical Review D** 94, 102002, 2016
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), GW170104: Observation of Gravitational Waves from a 50-Solar-Mass Binary Black Hole Coalescence at Redshift 0.2, **Physical Review Letters** 118, 221101, 2017
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Exploring the sensitivity of next generation gravitational wave detectors, **Classical and Quantum Gravity** 34, 044001, 2017
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), Directional Limits on Persistent Gravitational Waves from Advanced LIGO's First Observing Run, **Physical Review Letters** 118, 121102, 2017
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), GW170608: Observation of a 19 Solar-mass Binary Black Hole Coalescence, **The Astrophysical Journal Letters** 851, L35, 2017
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), GW170814: A Three-detector Observation of Gravitational Waves from a Binary Black Hole Coalescence, **Physical Review Letters** 119, 141101, 2017
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), GW170817: Observation of Gravitational Waves from a Binary Neutron Star Inspiral, **Physical Review Letters** 119, 161101, 2017
- B. P. Abbott, ...**K. Lee**, ...J. Zweizig. (LIGO Scientific Collaboration and Virgo Collaboration), GWTC-1: A Gravitational-Wave Transient Catalog of Compact Binary Mergers Observed by LIGO and Virgo during the First and Second Observing Runs, **Physical Review X** 9, 031049, 2019

Presentations at International Conferences and Collaboration Meetings

Seoul National University, Seoul, Korea

Invited Academic Seminar 13 Aug. 2020
The Era of Gravitational Waves, and the Science That Makes It Possible

Korea Gravitational Wave Group Workshop, Gunsan, Korea

Invited Academic Seminar 31 Jul. 2020
Coating Research for Next Generation of Gravitational Wave Detectors

Korea University, Seoul, Korea

Invited Academic Seminar 11 Jun. 2020
Reducing Suspension Thermal Noise and Coating Brownian Noise

Sungkyunkwan University, Suwon, Korea

Invited Academic Seminar 03 Jun. 2020
The Era of Gravitational Waves, and the Science That Makes It Possible

Korea Astronomy & Space Science Institute (KASI), Daejeon, Korea

Invited Academic Seminar 26 May. 2020
How to Fight Against the Temperature: Reducing Suspension Thermal Noise and Coating Brownian Noise

The LSC – Virgo Meeting, Geneva, Switzerland

Presentation (Talk)

28 Aug. 2017 ~ 01 Sep. 2017

Instrumental Science Plenary: Investigations of Suspension Upgrades for the aLIGO Detectors

The 5th ELiTES General Meeting, Tokyo, Japan

Presentation (Talk)

08 Feb. 2017 ~ 10 Feb. 2017

Development of Power Stabilization Technology for Fused Silica and Sapphire Suspensions

The LSC – Virgo Meeting, Glasgow, United Kingdom

Presentation (Talk)

29 Aug. 2016 ~ 02 Sep. 2016

Joint Instrument: Development of Fused Silica Technology for Heavy Test Mass Suspensions

Gravitational Wave Advanced Detector Workshop (GWADW), Elba, Italy

Poster Presentation

22 May. 2016 ~ 28 May. 2016

The 11th Edoardo Amaldi Conference in Gravitational Waves, Gwangju, South Korea

Presentation (Talk)

21 Jun. 2015 ~ 26 Jun. 2015

Concepts and Techniques for Future Detectors: Investigation of Suspension Upgrades for the Advanced LIGO Gravitational Wave Detector

Previous Research Experience

Study of Reactor Flux Uncertainty & Prediction of Expected Reactor Neutrino Events,

RENO Collaboration, South Korea

Jun. 2012 ~ May. 2013

Suspension Upgrade Research for Gravitational Wave Detectors,

Caltech LIGO Group, CA, USA

Jun. 2010 – Jun. 2011

Mixed Conducting Electrodes for Solid Oxide Fuel Cells,

Caltech, CA, USA

Jun. 2009 – Jun. 2010

Teaching Experience

- **Undergraduate Research Supervisor**, Stanford University, CA, United States
 - Experiment supervisor Jun. 2019 – Sep. 2019
 - [Employer] Stanford University
- **Demonstrator**, University of Glasgow, Glasgow, United Kingdom
 - Experiment demonstrator Jan. 2015 – Jun. 2017
 - [Employer] University of Glasgow
- **Undergraduate Tutor**, Caltech, CA, USA
 - Tutor Oct. 2008 – Jun. 2011
 - [Employer] Caltech Dean's Office
- **Student Taught Course Lecturer**, Caltech, CA, USA
 - Student lecturer Sep. 2010 – Dec. 2010
 - [Employer] Caltech Dean's Office

Research Affiliations

- **LIGO Scientific Collaboration**
- **LIGO Center for Coatings Research**
- **Stanford Ginzton Laboratory**