

# KIMYEONG LEE

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Birth: Republic of Korea, May 27, 1959  
Citizenship: Republic of Korea  
Family: Chan E Chi Lee (wife b1964) and William Dongil Lee (Son b1990)

## Job Experience:

1999.09 - Professor, School of Physics, Korea Institute for Advanced Study  
2023.09 - Vice President of Korea Institute for Advanced Study  
2023.06- *Myung Hyo-chul Chair Professor* in the School of Physics, KIAS  
2014 - 2015 Founding Director of Quantum Universe Center, KIAS  
2013.09 - 2016.10 Vice President of Korea Institute for Advanced Study  
1998.09 - 1999.08 Associate Professor, Physics Department, Seoul National University  
1996.09 - 1998.08 Associate Professor, Physics Department, Columbia University  
1990.09 - 1996.08 Assistant Professor, Physics Department, Columbia University  
1988.08 - 1990.08 Research Associate, Physics Department, Boston University.  
1987.04 - 1988.08 Research Associate, Theory Group, Fermi National Accelerator Laboratory

**Long Term Visit Institute:**

2012 Visiting Fellow of Newton Institute for Mathematical Science, Cambridge  
2009.09 - 2009.12 Visiting Professor, Physics Department, Harvard University  
2003.09 - 2004.05 Visiting Professor, Physics Department, University of Texas at Austin  
2001.09 - 2001.12 Visiting Professor, Physics Department, Columbia University,  
1993.09 - 1993.08 Visiting Research Scholar, Institute for Advanced Studies  
1992.09-1993.01 Unpaid Scientific Associate, CERN  
1989.09-1990.07 Affiliate of Physics Department, Harvard University

**Education:**

1985.09 - 1987.01 Ph.D. in Physics Department, Columbia University,  
Thesis: *Tunnelling without Barriers* with Advisor Prof. Erick Weinberg  
1982.09 - 1985.08 M.S. and M.Phil. in Physics, Columbia University  
1977.03 - 1981.02 B.S. in Physics, Seoul National University, Korea

## Honors and External Academic Activities:

- 2023.10 *String Math 24* at ICTP, a member of advisory committee
- 2023.07 *2023 International Congress in Basic Science* a referee of best paper prizes in physics
- 2022.12 *String Math 23* at Melbourne Australia, a member of advisory committee
- 2022.03- *National Center for Theoretical Sciences* at Taiwan, a member of international advisory committee
- 2020.06- *Asian Pacific Center for Theoretical Physics*, a distinguished fellow
- 2019.06- *ICTP-AsianPacific* at UCAS Beijing, China a founding member of Science Council
- 2015.01 Korean Physical Society, a member of Board of Trustees for 4 years
- 2014.01 *Center for Quantum Universe* at KIAS, a founding head of the center
- 2014.07 *Best National Scientist & Engineer Award* (Presidential), KOFST, Korea
- 2013 *String Theory* annual conference, a member of IAB for 10 years
- 2012.12 *CQeST, Sogang University SRC*, one of the best papers award
- 2011.01- *Kavli Asian Winter School on Strings, Particles and Cosmology*, International Steering Committee
- 2009.03 *CQeST, Sogang University SRC*, one of two best research paper award
- 2006 *National Scholar* at Korea Research Foundation Honor and Grant for 10 years
- 2006- *Progress in Theoretical and Experimental Physics* of Japan, an editor
- 2004- *Korea Academy of Science and Technology* a regular member
- 1992 *Gravity Research Foundation* the 2nd award
- 1991 *Alfred P. Sloan Fellow* for 2 years, A.P. Sloan Foundation, USA
- 1991 *Presidential Young Investigator* for 5 years, the National Science Foundation, USA
- 1981-82 *Usan Fellow*, the Usan Foundation in Korea

## Academic Affairs, Committee Activities & Services

- 2024.01 *High 1 Workshop on Particles, String and Cosmology*, an organizer
- 2023.11 *East Asia Joint Workshop on Strings*, Xi'an China, an organizer
- 2023.10 *Recent Developments in Supersymmetric Field Theories*, KAIST-KIAS-Postech workshop at Jeju, an organizer
- 2023.01 *High1 Workshops on Particle, String and Cosmology*, an organizer
- 2023.01 *Kavli Asian Winter School on Strings, Particles and Cosmology*, Daejeon IBS, head organizer
- 2022.11 *East Asia Joint Workshop on Fields and Strings 2022* at KIAS, an organizer

2022.09 *Autumn Symposium on Fields and Strings*, an organizer

2021.12 *New Frontiers in Quantum Field Theory and String Theory*, an organizer

2021.12 *String Theory and Quantum Gravity* KIAS-YITP at Kyoto, an organizer

2021.08 *Strings in Seoul 2021* at KIAS, an organizer

2020.09 *Autumn Symposium on String Theory* at KIAS, an organizer

2020.06 *About Fields, Strings and Gravity* at Hongdae area, an organizer

2020.01 *New Frontiers in String and Field Theories* at Incheon, head organizer

2019.09 *KIAS-YITP 2019* at KIAS, an organizer

2019.01 *Kavli Asian Winter School on Strings, Particles and Cosmology* at Sogang University, head organizer

2018.11 *East Asia Joint Workshop on Strings*, KIAS, an organizer

2018.01 *Kavli Asian Winter School on Strings, Particles and Cosmology*, ICTS, Bangalore, India, a steering committee member

2017.11 *East Asia Joint Workshop on Fields and Strings 2017*, KEK Japan, an organization committee member

2017.09 *KIAS-YITP Workshop on Strings, Gravity and Cosmology*, an organization committee member,

2017.09 *Autumn Symposium on Strings*, KIAS, head organizer,

2017.06 *Strings 2017, Israel*, a member of International Advisory Committee

2017.03 *Superconformal field theories in four or more dimensions*, Aspen Center for Physics, an organization committee member

2017.01 *Kavli Asian Winter School on Strings, Particles and Cosmology*, an international steering committee member

2016.09-18.08 *Review Committee member of Korea Astronomy and Space Science Institute* in National Research Council of Science and Technology

2016.09 *KIAS 20th Anniversary Celebration*, the organization committee chair

2016.09 *Autumn Symposium on String Theory*, KIAS an organizer

2016.05 *East Asia Joint Workshop on Fields and Strings*, a founding member of the organizing committee, USTC, Hefei, China

2016.02 *Workshop on Fields, Strings and Gravity*, KIAS, the organizer

2016.01 *20th APCTP Winter School on Fundamental Physics* APCTP, Pohang, an organizer

2015.12 *Current Topics in String Theory*, KIAS Research Station Program, the chair organizer

2015.09 *Geometry in Gauge Theories and String Theory*, KIAS-YIPT Joint Workshop, an organizer

2015.05 *The International Conference on Gravitation and Cosmology/The Fourth Galileo-Xu Guangqi Meeting* , KITP, Beijing China, an international organizer

2015.01 *the 9th Asian Winter School on Strings, Particles and Cosmology*, Busan, Korea, head organizer

2015.01 *the 2nd Workshop on Developments in M-Theory*, High-1, KIAS Workshop, an organizer

2014.09 *Autumn Symposium on String/M Theory*, KIAS Workshop, head organizer

2014.07 *Exact Quantum Fields and the Structure of M-theory*, Greece Crete Center for Theoretical Physics, Greece, an international organizer

2014.06 *Recent Development in Theoretical Physics*, KIAS Workshop, head organizer

2014.01 *Hoam Science Prize*, a selection committee member

2013.07 *String Theory, Black Holes and Holography*, KIAS-YIPT Joint Workshop, an organizer

2013.06 *Strings 2013*, Seoul, Korea, a co-head organizer

2013.06 *Exact Results in String Theory*, KIAS Prestring Workshop, head organizer

2013.02 *the 7th Asian Winter School on Strings, Strings and Cosmology*, Jeju, Korea, an organizer

2013.01 *APCTP Winter School on Strings*, an organizer

2013.01 *Hoam Prize*, a selection committee member

2012.09 *Autumn Symposium on String/M Theory*, KIAS Workshop, head organizer

2012.05 *Maths of String and Gauge Theory*, London, UK, an International Advisor

2011.05 *A Spring Workshop on Strings*, CQeST, Sogang, an organizer

2011.01 *Asian Winter School on Strings, Particles, and Cosmology*, a steering committee member

2010.09 *Autumn Symposium on Strings*, KIAS Workshop, head organizer

2009.02 *Winter School for Quantum Field Theory* at APCTP, an organizer  
2009.01 *KIAS-SNU Physics Winter Camp*, an organizer  
2008.09 *Recent Developments in String/M theory*, KIAS Workshop, head organizer  
2008.06 *SUSY08* at Seoul, an organizer  
2008.02 APCTP/CQeST *Field Theory Winter School 2008*, Pohang, an organizer  
2008.01 *KIAS-SNU Physics Winter Camp*, an organizer  
2006.06 the KIAS-APCTP-CQeST miniworkshop on *Pre-Strings*, head organizer  
2006.02 *KIAS-APCTP-CQeST Winter School on Fields and Strings*, an organizer  
2005.11 *Supersymmetric Theories and Their Characteristics*, KIAS-SNU mini-workshop, an organizer  
2005.09 *KIAS-YITP Joint Workshop on Cosmological Landscape* , an organizer  
2005.05-2006.04, *CQeST, Sogang University SRC*, the steering committee member  
2005.05, *Spring Mini-Workshop on Field Theory* at Univ. of Seoul, an organizer  
2005.02-.04 *Hoam Prize*, a selection committee member  
2005.02 *9th APCTP/KIAS Winter School on String Theory*, an organizer  
2005.01 *KIAS-SNU Physics Winter Camp*, an organizer  
2004.09-2005.10 *KIAS 10th Anniversary Ceremony*, an organizer  
2004.02 *8-th APCTP/KIAS Winter School on String Theory*, an organizer  
2004.01 *KIAS-SNU Physics Winter Camp*, an organizer  
2003.05 *KIAS Workshop on Quantum Field Theory and Mathematical Physics*, an organizer  
2003.02 *KIAS/APCTP Winter School on Strings and Branes*, an organizer  
2003.01 *KIAS-SNU Physics Winter Camp*, an organizer  
2002.11 *APCTP/KIAS mini-workshop* at Pohang, an organizer  
2002.05 *Quantum Field Theory and Mathematical Physics*, KIAS workshop, an organizer  
2002.02 *KIAS-APCTP Winter School on Strings*, an organizer  
2002.05 *KIAS workshop on Strings and Branes*, an organizer  
2002.01 *KIAS Physics Winter Camp*, an organizer

2001.09 *Solitonic Objects in String and Field Theories*, KIAS workshop, an organizer  
2001.09-03.08 *JKPS/Saemulli*, an editor  
2001.06 *KIAS/APCTP First Summer Institute for Theoretical Physics*, an organizer  
2001.06 *APCTP-KIAS Workshop on String Theory*, an organizer  
2001.04 *KIAS Spring School for Particle Physics*, an organizer  
2001.01 *KIAS-SNU Physics Winter Camp*, an organizer  
2000.12 *KIAS-APCTP 5th Winter School on Strings and Field Theory*, an organizer  
2000.09 *Cosmos 2000*, Jeju Island, Korea, the cochair of the organizing committee  
2000.06 *KIAS Summer Workshop on Branes*, an organizer  
2000.02 *Winter School on Strings and D-Branes*, APCTP-KIAS  
2000.02 *Asian Winter School for Particle Physics*, an organizer  
2000.01 *KIAS-SNU Physics Winter Camp*, an organizer

## Mentored Postdocs and Ph.D. Students:

- 2022-24 *Kawien Sun*, a postdoc at Uppsala University
- 2020-24 *Xin Wang*, KIAS postdoc
- 2019-23 *Zhihao Duan*, a postdoc at Queen Mary Univ. London in fall 2023
- 2019-21 *June Nahmgoong*, Head Researcher at Akros Technology
- 2017-21 *Mattheu Sarkis*, a postdoc at Univ. Luxembourg
- 2016-20 *Jin-Beom Bae*, Quantitative Researcher at WorldQuant
- 2015-19 *Joonho Kim*, Research Engineer at Rigetti Computing
- 2013-17 *Futoshi Yagi*, associate professor at SW Jiaotong University, Chengdu, China
- 2011-14 *Hee-Cheol Kim*, assistant professor at Postech
- 2011-14 *Sung-Soo Kim*, professor at UESTC, Chengdu, China
- 2011-15 *Dongmin Gang*, assistant professor at Seoul National University
- 2008-12 *Sungjae Lee*, professor at KIAS
- 2007-11 *Seok Kim*, professor at Seoul National University
- 2003-07 *Ho-Ung Yi*, associate professor at Illinois University, Chicago, USA
- 1999-02 *Jeong-Hyuck Park*, professor at Sogang University
- 1994-97 *Piljin Yi*, professor at KIAS
- 1990-94 *Hsien-Chung Kao*, Ph.D. student, professor at Taiwan Normal University, Taiwan.

## Teaching and Lectures:

- 2023.03-23.06 *Generalized Symmetry and Topological Phases*, 8 lectures in SNU
- 2010.03-10.06 *Special and General Relativity* at SNU
- 2008.05-08.06 *Lectures on Superconformal Chern-Simons Theories*, SKKU and SNU
- 2007.02 *Lectures on BPS objects*, APCTP
- 2007.08 *Lectures on Supersymmetric Field Theories*, Institute for Theoretical Physics, SKKU

2006.05 *BPS objects* CMS, Zhezhang Univ. China  
2006.02 *Lectures on BPS Objects*, APCTP Field Theory Workshop, Pohang  
2005.09-05.12 *A Course on Physics for Mathematicians*, SNU Physics Department  
2005.01 *Lectures on String Theory*, KIAS-SNU Winter Camp  
2004.09 *6 Lectures on Supersymmetric Yang-Mills Theories*, KAIST  
2003.05 *Lectures on  $N=1$  Supersymmetric Yang-Mills theories*, KIAS  
2003.01 *Lectures on Topological Ideas in Quantum Mechanics*, KIAS-SNU Physics Winter Camp  
2002.03-02.06 *Special Lectures on String Theory*, KIAS  
2002.02 *Introduction to the Field Theory*, KIAS mini winter physics camp  
2002.01 *Soliton Physics*, KIAS-SNU Winter Physics Camp  
2001.01 *Path Integral*, KIAS Winter Physics Camp  
2000.01 *Lagrangian Mechanics*, KIAS Physics Winter Camp  
1999.03-99.07 *Advanced Classical Mechanics*, SNU  
1999.03-99.7 *Supersymmetry*, SNU  
1998.09-98.12 *Physics and Mathematics*, SNU  
1995.09- 98.06 *Advanced Quantum Mechanics (QFT) I & II*, Columbia  
1994.01- 95.05 *General Relativity*, Columbia  
1990.09- 94.05 *Lagrangian Mechanics*, Columbia  
1990.09- 98.05 *Graduate Seminar*, Columbia  
1990.09- 94.05 *Mathematical Method for Physics*, Columbia

## Talks & Seminars

- 2024.04 *Strngs in 6d SCFTs and Little String Theories*, Resurgence and Modularity in QFT and String Theory, Galileo Galilei Institute, Florence, Italy. <https://www.ggi.infn.it/showevent.pl?id=467>
- 2023.10 *T-duality of 6d (2,0) and (1,1) Little String Theories with Twist*, I. Newton Institute for Mathematical Sciences, Cambridge University
- 2023.07 *On 6d dimensional superconformal field theories and little string theories*, International Congress of Basic Science 2023, BIMSA, Beijing
- 2023.03 *Twisting 6d LSTs, QFTs and Representation Theory*, Osaka Metropolitan University
- 2023.03 *Twisting (2,0) and (1,1) Little String Theories*, Caltech
- 2023.03 *Twisting 6d SCFTs and LSTs*, Lisbon Portugal
- 2022.12 *On Higher-dimensional Quantum Field Theories*, IBS and Pusan Univ.
- 2022.11 *Rational Conformal Field Theories MLDE, Finite Group, and Hecke*, Research Summary at Jeju Univ, APCTP and IBS Korea
- 2022.10 *Twisting 6d (2,0) CFTs*, Quantum Geometry and Duality, GIST Korea
- 2022.06 *On Fermionic Conformal Field Theories*, Mittag-Leffler Workshop on Enumerative Invariants in Quantum Field Theory and String Theory, Mittag-Leffler Institute Sweden
- 2022.01 *Discrete Gauging of 5-dim Superconformal Field Theories*, Theoretical Physics at CQUeST: Past, Present, and Future CQUeST, Sogang University
- 2021.12 *Wilson Loops in 5 & 6 Dimensions*, KIAS-YITP workshop, YITP, Kyoto Japan
- 2021.12 *QFT, a new frontier*, KPS division meeting, Particles and Fields
- 2021.11 *Twisted Compactification of 6d SCFTs*, East Asia Joint Workshop on Strings and Fields, Osaka City University, Japan
- 2021.04 *Two tales of twisted 6d (2,0) CFTs*, Imperial Quiver Meeting, London UK
- 2020.12 *Fermionic Modular Differential Equations*, Imperial String Theory Seminar, London UK
- 2020.11 *Fermionic Rational Conformal Field Theories*, Yonsei String Workshop, Yonsei University
- 2020.02 *Complete Prepotential of 5d Superconformal Field Theories*, Research Directions in Quantum Field Theory and String 2020, Sogang University

- 2019.12 *Complete Prepotential of 5d Superconformal Field Theories*, IBS-Busan Workshop on Physics Beyond the Standard Model
- 2019.10 *Complete Prepotential of 5d Superconformal Field Theories* East Asia Joint Workshop on Fields and Strings 2019 12th Taiwan String Theory Workshop, Taiwan
- 2019.09 *On BPS objects in 5 and 6 dim SCFTs*, BPS/CFT Correspondence Workshop at CIRM, Marseille, France
- 2019.08 *5 and 6 Dimensional Quantum Field Theories*, Yangyang, Korea
- 2019.06 *Higher Dimensional Quantum Field Theories*, String theory, Gravitation and Cosmology 2019, APCTP
- 2019.05 *Higher Dimensional Quantum Field Theories*, ICTP-AP Inauguration Conference, ITP, Beijing China
- 2018.12 *On T-dualities in Little String Theories*, String and M-theory: The New Geometry of the 21 Century, IMS, NUS Singapore
- 2018.11 Physics Dept. Fudan University, Shanghai China
- 2018.11 East Asian Joint Workshop on Strings, KEK Japan
- 2018.10 *On 5-dim Superconformal Field Theories, Non-perturbative Effects in Supersymmetric Field Theories*, IIP, Natal, Brazil
- 2018.09 *6d SCFT and LST*, Tsing-Hua Symposium on Geometry and Physics, YCMS, Tsing-Hua Univ. Beijing China
- 2018.05 *Higher Dimensional Quantum Field Theories*, ICTP-AP Inauguration Conference, ITP, Beijing China
- 2018.04 *5-brane webs for 5d N=1 lower rank theories*, EuroStrings 2018, London
- 2018.04 *5-brane webs and dualities of 5d G2 gauge theory*, Supersymmetric QFTs in Non-perturbative Regime, GGI, Florence Italy
- 2018.02 *5-Brane Webs of SCFTs for N=1 G2 Theories*, Localization Techniques Program, SCGP, Stony Brook University, USA
- 2017.11 *A progress in 5d SCFTs*, East Asia Joint Workshop on Fields and Strings, KEK, Japan
- 2017.10 *T-duality and little string theories*, International Workshop on Superconformal Theories 2017, Sichuan University, China
- 2017.08 *6d Superconformal Field Theories and Little String Theories*, Tsinghua Summer Workshop in Geometry and Physics, YCMS Tsinghua University, China

- 2017.08 *Instantons in 5 and 6 Dim Quantum Field Theories*, NCTS 20th Anniversary Symposium: Frontiers in Physics, NCTS, Taiwan
- 2017.08 *Instanton and Instanton Strings in Higher Dimensional Theories*, Nanaki Symposium on Physics, Geometry and Number Theory, CIM, Nankai University, Tianjin China
- 2017.07 *Higher Dimensional Quantum Field Theories*, a workshop on Topological Aspects in Physics (Topology 2017) IMP of CAS Lanzhou, China
- 2017.06 *Instanton Solitons and Strings in 5,6 dim SCFTs and LSTs*, Pollica Summer Workshop, Pollica Italy
- 2017.05 *Higher Dimensional QFTs*, Physics Dept. Pisa University, Italy
- 2017.04 *Bootstrapping Purely Quantum Gravity in AdS<sub>3</sub>*, Recent Developments in AdS<sub>3</sub> Black Hole Physics, GGI, Florence Italy
- 2017.03 *Superconformal field theories in four or more dimensions*, Aspen Center for Physics, an organization committee member
- 2017.02 *Higher Dimensional Field Theories*, KIAS Workshop on Workshop on Fields, Strings and Gravity, IBS-KIAS Workshop on Particle Physics and Cosmology
- 2017.01 *Higher Dimensional Field Theories*, String Theory: Past and Present, SpentaFest, ICTS, India
- 2016.10 *On M5 Branes*, Hanoi International Activities on "Gravitation and the Universe", Vietnam
- 2016.08 *Aspects of 6-dim superconformal theories and little string theories* Strings 2016, Beijing
- 2016.07 *A Review on Little String Theories*, International Conference on frontiers of science on "Quantum Cosmo-physics", KITPC, Beijing
- 2016.07 *A Review on Little String Theories* Satellite conference to String 2016 on 6D little string theory, Beijing University, Beijing
- 2016.07 *Higher Dimensional QFTs*, NCTS Summer workshop on Strings and Quantum Field Theory, Taiwan
- 2016.06 *Higher Dimensional Quantum Field Theories*, Invited Plenary talk, PASCOS 2016, Quy Nhon, Vietnam
- 2016.04 *Aspects of 6d Supersymmetric Theories*, String geometry and BPS state counting Workshop, IHP, Paris
- 2016.01 *6 dim Supersymmetric Theories*, Rikkyo MathPhys 2016, Gauge Theory, CFT and Integrability

- 2016.01 *Three Lectures on Chern-Simons Theory and Condensed Matter Physics*, 2016 Winter Workshop on Topology and Quantum Numbers, Seoul National University
- 2015.12 *Five and Six Dimensional Supersymmetric Theories*, IBS-PNU Joint Workshop on Particle Physics, String Theory and Cosmology
- 2015.12 *Superconformal Field Theories in Higher Dimensions*, Taiwan NCTS Annual Meeting 2015: Particles, Cosmology and String
- 2015.10 *Higher Dimensional Superconformal Theories*, XiAn, China
- 2015.07 *Elliptic Genus in 6-dim SCFTs and LSTs*, Workshop on Geometric Correspondence of Gauge Theories, SISSA, Italy
- 2015.06 *5 and 6 dim Superconformal Theories*, Challenges to QFTs in Higher Dimensions, Technion, Israel
- 2015.05 *6 dim Supersymmetric Theories*, Invited, The International Conference on Gravitation and Cosmology/The Fourth Galileo-Xu Guangqi Meeting, KITP, Beijing China
- 2015.03 *Maximally Supersymmetric 6-dim Theories*, Invited, Resurgence and Localization in String Theory and QFT, Simons Center for Geometry and Physics
- 2015.03 *Maximally Supersymmetric 6-Dim Theories*, University of Chicago,
- 2015.01 *6d (2,0) and (1,0) SCFTs*, Invited, KEK Theory Workshop 2015, KEK, Japan
- 2014.11 *E8 Elliptic Genus*, Invited, Gauge Theory, Integrability and Novel Symmetries of QFT Program, Simons Center for Geometry and Physics, Stony Brook Univ., USA
- 2014.11 *6-dim (2,0) and (1,0) superconformal field theories*, CCNY, CUNY, USA
- 2014.11 *Some strongly coupled QFTs in 3,4,5,6 dimensions*, Physics Department, Brookhaven National Laboratory, USA
- 2014.10 *6-dim (2,0) and (1,0) superconformal field theories*, Invited, Workshop on String Theory and Its Application, IHEP, Beijing, China
- 2014.06 *6d (2,0) Theories and M5 Branes*, Recent Developments in Theoretical Physics, KIAS
- 2014.06 *String Theory: Its Highlights and Challenges*, KIAS-ITP MOU, ITP, Beijing
- 2014.05 *Exact Results on M5 Branes*, Gauge Theories, Quivers, Tilings and Calabi-Yaus, ICMS, Edinburg, UK
- 2014.05 *Exact Results on M5 Branes* Imperial College, UK
- 2014.04 *On M5 Branes*, New Methods in Nonperturbative Quantum Field Theory, QFT14 KITP UCSB, USA

2014.03 *A Theoretical Physicist's Outlook*, Colloquium, Chungang University

2014.02 *6d (1,0) and (2,0) SCFTs*, KIAS-NCTS Joint Workshops, High1

2014.02 *A Story of M-theory and Quantum Mechanics*, QUC Inauguration Conference, KIAS

2014.02 *Superconductor Higgs Mechanism, and Higgs Particle*, KIAS/SNU Winter Camp

2014.01 *Review of 6d (2,0) theory on M5 branes*, Bangkok Workshop on Strings, Chulalongkorn Univ.

2014.01 *6d (1,0) and (2,0) Supersymmetric Conformal Theories*, Canada Banff Research Center Workshop on M theory

2013.09 *Instituting Trans-disciplinarity at KIAS*, UBIAS Workshop, Peter Walls IAS, UBC, Canada

2013.07-.8 *Defects on M5 Branes*, an invited talk at Simons Center for Geometry and Physics, Stony Brook, USA

2013.07 *On M5 Branes*, an invited talk at Aspen Physics Center, Aspen, USA

2013.07 *The supersymmetric M5 brane theories on  $R \times CP^2$* , the KIAS-YITP joint conference on String Theory, Black Holes, Holography, Kyoto, Japan

2013.01 *New 5d Supersymmetric Field Theories on M5*, invited talk in Conference on Symmetry and Geometry of Branes in String/M Theory, Durham University, England

2013.01 *New 5d Supersymmetric Field Theories on M5*, invited talk at International Symposium on Exact results in SUSY gauge theories and integrable systems, Rikkyo University, Tokyo, Japan

2013.01 *A View of World: String Theory*, Seoul Science High School, Seoul, Korea

2013.01 *New 5d Supersymmetric Field Theories on M5*, International Conference on Black Holes, CQUeST, Sogang University

2012.11 *A View of World: String Theory*, Colloquium at Ewha Womans University

2012.10 *On M5 Branes*, invited talk, 'From Gravity to Strong Coupling Physics', YITP Kyoto Univ. Japan

2012.09 *On M5 Branes*, invited talk, Autumn Symposium on String/M Theory, KIAS Korea

2012.08 *Trans Disciplinary Research Necessicity and  $\mathcal{E}$  the Color Vision*, Trans Disciplinary Launching Conference at KIAS, Seoul, Korea

2012.08 *5d Superconformal Index with Enhanced E-type Global Symmetry*, LHC Physics Workshop, Konkuk Univ. Korea

- 2012.05 *N-Cube and Junctions on M5 Branes*, invited talk, Math Dept. York University, UK
- 2012.05 *N-Cube and Junctions on M5 Branes*, invited talk, Math Dept. Durham University, UK
- 2012.04 *5d Superconformal Index with Enhanced E-type Global Symmetry*, Workshop on Mathematical Aspects of String and M-theory, Newton Institute in Cambridge University, UK
- 2012.04 *Counting in 4,5,6 dimensions*, Workshop on Recent developments in Q.F.T. and String Theory, Osaka City Univ., Japan
- 2012.03 *Counting in 4,5,6 dimensions*, IAS and Columbia Univ.
- 2011.12 *On M2 and M5*, Xth International Conference on Gravitation, Astrophysics and Cosmology (ICGAC10), Quy-Nhon, Vietnam
- 2011.12 *Hosotani Mechanism and Dividing Instantons in Two Ways*, International Workshop: Extra Dimensions in the Era of the LHC, Osaka, Japan
- 2011.09 *N-Cube on M-Five*, KIAS-Yukawa Workshop on Strings, Seoul
- 2011.09 *N-Cube on M-Five* 17th European Workshop on Strings, Padova, Italy
- 2011.08 *M2 and M5 Branes*, QTS7, Praha, Czech Republic
- 2011.07 *Junctions and N-Cube on M5 Branes*, Benasque, Spain
- 2011.06 *Junctions and N-Cube in 6d (2,0) SCFT*, DAMTP, Cambridge University England
- 2011.05 *Junctions and N-Cube in 6d (2,0) SCFT*, Spring Workshop on String Theory, CQUEST, Sogang Univ., Seoul
- 2010.11 *Breakthroughs and Challenges in M-Theory* APPC11, Shanghai, Invited Plenary Speaker
- 2010.09 *On M2 Branes*, IEU, Ewha University
- 2010.08 *On M2 Branes*, Invited Talk APCTP Focus Program: Aspects of Holography and Gauge/String Duality,
- 2010.08 *Lectures on Chern-Simons Theory and Its Applications* Open KIAS Institute
- 2010.06 *Supersymmetric Theories on M2 Branes*, Invited Talk, Durham Workshop on Non-Perturbative Techniques in Field Theory
- 2010.06 *Gravity as Entropic Force*, Max Planck Institute, AEI, Germany
- 2010.04 *Recent Developments of Theories on M2 Branes*, Pusan University

2009.12 *Recent Developments in  $N \geq 4$  Chern-Simons Theories*, MIT

2009.11 *Recent Progress in  $N \geq 4$  Chern-Simons Theories*, Harvard University

2009.10 *Fuzzy Spheres on Horizon*, Invited Talk, Max Planck Institute, AEI, Workshop on Membranes, Minimal Surfaces and Matrix Limits

2009.10 *Recent Progress in  $N \geq 4$  Chern-Simons Theories*, Humboldt University

2009.10 *Recent Progress in  $N \geq 4$  Chern-Simons Theories*, Princeton University, Workshop on AdS/CFT Correspondence

2009.08, *On M2 Branes* LHC meeting, Kunkuk Univ.

2009.02, *On M Theory*, APCTP/KIAS Winter workshop

2008.09, *Law of the Nature*, Colloquium in Sejong University

2008.08, *I see M everywhere*, LHC meeting, Kunkuk Univ.

2008.07, ‘New Superconformal Chern-Simons Theories’, Damtp, Cambridge Univ., Eurostrings 2008, Amsterdam, ICTP, Imperial College, UK.

2008.05, ‘Law of the Nature’, Colloquium in Ewha Womans University

2008.04, Invited Talk APCTP/CQeST Workshop

2008.02, APCTP/CQeST Topical Program: Field Theory Winter School, on Strings and Fields, Lectures on ‘AdS-CFT Correspondence’

2008.01, APCTP Topical Program: Workshop on Quantum Field Theories and Mathematical Physics, invited talk on ‘Janus Field Theories’, APCTP

2007.12, Progress of String Theory and Quantum Field Theory, invited talk on ‘Janus Quantum Field Theories’, COE Program, Osaka City Univ., Osaka, Japan

2007.09, ‘What is the Universe?’ Korea National Science Museum, Tajeon, Korea

2007.09, ‘BPS Webs of Selfdual Strings in M5 Branes’ NCTS, Taiwan, 10th Anniversary Meeting

2007.08, APCC10 (Asian Pacific Physics Conference), Pohang, *A Story of M Theory*

2007.07, *Three-Dimensional Gravity Revisited*, Post-String Meeting at CQeST, Sogang

2007.06, ‘BPS Membranes’, Aspects of Membrane Dynamics, Royal Institute of Technology, Sweden

2007.05, Colloquium on *A Story of M Theory*, SKKU, Suwon

2006.12, *BPS String Webs on M5 Branes*, YITP Conference, Japan

- 2006.11, ‘The Degrees of Freedom in M5 and M2 Branes’, M theory in the City, Queen Mary Univ. of London
- 2006.11, ‘The Degrees of Freedom on M5 Branes’, DAMTP, Cambridge University
- 2006.08, ‘Current Research Topics’, CQeST Retreat Meeting
- 2006.07, A Seminar on ‘BPS Webs of Strings and D-Branes’, Perimeter Institute, Canada
- 2005.12, Yukawa ITP Japan, invited talk on ‘supertubes’ in the workshop on ‘fundamental problems and applications of quantum field theories’.
- 2005.09, Colloquium on ‘The Theory of Everything’, KAIST
- 2005.04, Colloquium on ‘The Theory of Everything’, in Jun-Nahm Univ. Kwangju
- 2005.04, Colloquium on ‘The Theory of Everything’, Kyong-Sang Univ. Jinju.
- 2004.06, ‘Some Supersymmetric Theories with Circle Compactification’ Post-Strings 2004 Program, Durham University, England
- 2003.10, Texas A& M, College Station, *N=1 Super Yang-Mills Theories*
- 2003.09, Univ. of Texas, Austin, *N=1 Super Yang-Mills Theories*
- 2003.09, The 3rd conference on Quantum Mechanics and Symmetry, University of Cincinnati, Title *Dyonic Instantons and Supertubes*
- 2003.08, APCTP Workshop on QFT at O-Sail Yaksu, *Current Trends on Quantum Field Theory*
- 2003.05, Talk at KIAS Workshop on QFT and Math. Phys. *Supertubes and Dyonic Instantons*
- 2003.04, Colloquium at Yonsei Univ., *The Theory of Everything*
- 2003.01, Talk at KIAS Workshop on Skymions, *Skymions in 4 and 4 dimensions.*
- 2002.11, Colloquium at SNU, *The Theory of Everything: the M-version*
- 2002.11, APCTP-KIAS Mini-Workshop on String Theory, *Orientifolds in  $R^{1+3} \times S^1$ .*
- 2002.05, KIAS Workshops on Strings and Branes *Deconstruction of (2,0) Theories.*
- 2002.02, Newton Institute, *Deconstruction of Instantons*
- 2001.11, CUNY, *The Instanton Physics*
- 2001.06, APCTP-KIAS workshop on string theory, *The  $L^2$  Middle Form on Calabi Manifolds,*

2001.01, KAIS-SNU Winter Camp, *The Path Integral*  
2000.09, Pusan N. University, Physics Department Colloquium *Electromagnetic Duality and Magnetic Monopoles*  
2000.07, International Congress on Mathematical Physics, London, England, talk *Instantons on Noncommutative Space*  
2000.06, Triangle Meeting at Niels Bohr Institute, NBI Denmark, talk *Instantons and Calorons on Noncommutative Space*  
2000.06, KIAS Summer Workshop on Branes, talk *Toward the complete spectrum in supersymmetric theories*  
2000.02, APCTP-KIAS Winter School on Strings and D-branes, invited talk *Instantons on Noncommutative Space*. Department

**Recent Short Term Visiting Institutes:**

2023.11 Isaak Newton Institute, Cambridge University, UK  
2023.02 Caltech, USA  
2021.04 Sorbonne University, France  
2015.08 Benasque, Spain  
2015.07 Simons Center for Geometry and Physics, Stony Brook, NY, USA  
2014.11 Simons Center for Geometry and Physics, Stony Brook University, NY, USA  
2012.04-5, Newton Institute for Mathematical Science, Cambridge, UK  
2011.07, Benasque Center for Physics, Benasque Spain  
2010.10, Galileo Galilei Institute, Firenze, Italy  
2010.07, A. Einstein Institute, MPI, Golm Germany  
2008.07, ICTP, Trieste, Italy  
2008.07, Theory Group, Imperial College, London  
2008.06, Theory Group, DAMTP, Cambridge University  
2007.06, Math Group, Royal Institute of Technology, Stockholm  
2006.07, Perimeter Institute, Canada  
2006.05, Center for Mathematical Science, Zhejiang University, Hangzhou, China

2003.11-12, University of Texas at Austin  
2002.09, University of Texas at Austin  
2002.02, Newton Institute, Cambridge University, String Workshop  
2001.06, Rutgers University, String Theory Group  
2001.04, Columbia University  
2000.06, Triangle meeting and visit to Niels Bohr Institute, Copenhagen, Denmark  
2000.04, Columbia University  
1999.08, APCTP/PIMS summer workshop, Univ. of British Columbia, Canada.  
1999.07, Columbia University  
1999.06, Aspen Center for Physics  
1998.07, London Mathematical Society Meeting, Durham, England.  
1997.06, APCTP/PIMS summer workshop, Univ. of British Columbia, Canada.  
1997.06, Aspen Center for Physics  
1996.08, Telluride Institute, Low dimensional field theory workshop  
1996.06, Center for Theoretical Physics, Seoul National University  
1995.08, Brookhaven National Laboratory  
1995.07, Fermi National Accelerator Laboratory  
1995.06, Aspen Center for Physics  
1995.06, Center for Theoretical Physics, Seoul National University  
1994.07, Isaac Newton Institute, 'Topological defects workshop.'  
1993.06, Institute for Theoretical Physics, 'the small scale structure of spacetime.'  
1993.06, UCSB ITP, 'Cosmic phase transition, of spacetime workshop,' UCSB  
1992.08, Fermi National Accelerator Laboratory.  
1992.07, Aspen Physics Institute.

# List of Publications

Kimyeong Lee

<https://inspirehep.net/authors/1000765>

<https://scholar.google.com/citations?user=oZcPzDwAAAAJ&hl=ko&oi=ao>

## *Journal*

1. H.Hayashi, S.S.Kim, K.Lee, F.Yagi, *Seiberg-Witten curves with  $O7^\pm$ -planes*, [arXiv:2306.11631[hep-th]]
2. K.Lee, K.Sun, H.Wang, *On intermediate Lie Algebra  $E_{7+1/2}$* , [arXiv:2306.09230[math-ph]]
3. K.Lee, K.Sun, X.Wang, *Twistes Elliptic Genera*, [arXiv:2212.07341[hep-th]]
4. K.Lee, K.Sun, Hecke relations among 2d fermionic RCFTs, JHEP 09 (2023) 044, [arXiv:2211.15304[hep-th]]
5. Z. Duan, K. Lee, S. Lee, L. Li, *On classification of fermionic rational conformal field theories*, JHEP 02 (2023) 079, [arXiv:2210.06805[hep-th]]
6. Z. Duan, K. Lee, K. Sun, *Hecke relations, cosets and the classification of 2d RCFTs*, JHEP 09 (2022) 202, [arXiv:2206.07478[hep-th]]
7. M-X Huang, K. Lee, X. Wang, *Topological strings and Wilson loops*, JHEP 08 (2022) 207, [arXiv:2205.02366[hep-th]]
8. H.C.Kim, S.S. Kim, K. Lee, *S-foldings of 5d SCFTs*, JHEP 05 (2022) 178, [arXiv:2112.14550]
9. J. Chen, B. Haghighat, H.C. Kim, K. Lee, M. Sperling, *Elliptic quantum curves of 6d  $SO(N)$  theories*, JHEP 03 (2022) 154, [arXiv:2110.13487[hep-th]]
10. J.B. Bae, Z. Duan, K. Lee, S. Lee, M. Sarkis, *Bootstrapping fermionic rational CFTs with three characters*, JHEP 01 (2022) 089, [arXiv:2108.01647[hep-th]]
11. D. Gang, S. Kim, K. Lee, M. Shin, M. Yamazaki, *Non-unitary TQFTs from 3D  $\mathcal{N} = 4$  rank 0 SCFTs*, JHEP 08 (2021) 158, [arXiv:2103.09283[hep-th]]
12. Z. Duan, K. Lee, J. Nahmgoong, X. Wang *Twisted 6d  $(2,0)$  SCFTs on a Circle*, JHEP 07 (2021) 179, [arXiv:2103.06044[hep-th]]
13. J.B. Bae, Z. Duan, K. Lee, S. Lee, M. Sarkis, *Fermionic Rational Conformal Field Theories and Modular Linear Differential Equations*, PTEP 2021 (2021) 8, 08B104, [arXiv:2010.12392[hep-th]]

14. K. Lee, J. Nahmgoong, *Cardy Limits of 6d Superconformal Theories*, JHEP 05 (2021) 118, [arXiv:2006.10294[hep-th]]
15. J.B. Bae, J. Harvey, K.Lee, S. Lee, B. Rayhaun, *Conformal Field Theories with Sporadic Group Symmetry*, Commun.Math.Phys. 388 (2021) 1, [arXiv:2002.02970[hep-th]]
16. H. Hayashi, S.S. Kim, K.Lee, F. Yagi, *Complete prepotential for 5d  $\mathcal{N} = 1$  superconformal field theories* JHEP 02 (2020) 074, [arXiv:1912.10301[hep-th]]
17. J. Kim, S. Kim, K. Lee, K. Lee, J. Song *Instantons from Blow-up*, JHEP 11 (2019) 092, [arXiv:1908.11276[hep-th]]
18. H. Kim, S. Kim, K. Lee *Higgsing and Twisting of 6d  $D_N$  gauge theories*, JHEP 10 (2020) 014, [arXiv:1908.04704[hep-th]]
19. J. Bae, D. Gang, K. Lee *Magnetically charged AdS5 black holes from class S theories on hyperbolic 3-manifolds*, JHEP 02 (202) 158, [arXiv.org:1907.03430[hep-th]]
20. H. Hayashi, S. Kim, K. Lee, F. Yagi, *Rank-3 antisymmetric matter on 5-brane webs*, JHEP 05 (2019) 133, [arXiv:1902.04754]
21. J. Bae, K. Lee, S. Lee, *Monster Anatomy*, JHEP 07 (1919) 026, [arXiv:1811.12263[hep-th]]
22. K. Lee, M. Sarkis, *Algebraic surfaces, Four-folds and Moonshine*, JHEP 02 (2019) 164, [arXiv:1808.09134[hep-th]]
23. H. Hayashi, S. Kim, K. Lee, F. Yagi, *Dualities and 5-brane webs for 5d rank 2 SCFTs*, JHEP 12 (2018) 016, [arXiv:1806.10569[hep-th]]
24. H. Hayashi, S. Kim, K. Lee, F. Yagi, *5-brane webs for 5d  $\mathcal{N} = 1$   $G_2$  gauge theories*, JHEP 03 (2018) 125, [arXiv:1801.03916[hep-th]]
25. J. Kim, K. Lee, J. Park, *On elliptic genera of 6d string theories*, JHEP 10 (2018) 100, [arXiv:1801.01631[hep-th]]
26. H. Hayashi, S. Kim, K. Lee, F. Yagi, *Discrete  $\theta$  angle from an O5-plane*, JHEP 11 (2017) 041, [arXiv:1707.07181[hep-th]]
27. J. Kim, K. Lee, *Little strings on  $D_n$  orbifolds*, JHEP 10 (2017) 045, [arXiv:1702.03116[hep-th]],
28. J. Bae, K. Lee, S. Lee, *Bootstrapping Pure Quantum Gravity in AdS3*, [arXiv:1610.05814[hep-th]]
29. S. Kim, K. Lee, *Indices for 6d dimensional superconformal field theories*, J.Phys.A50 (2017) 44, 443017, [arXiv:1608.02969[hep-th]]
30. F. Benini et.al., *Localization techniques in quantum field theories*, J.Phys.A50 (2017) 44, 443031, [arXiv:1608.02969[hep-th]]

31. H. Hayashi, S-S Kim, K. Lee, F. Yagi, *Equivalence of several descriptions for 6d SCFT*, JHEP 01 (2017) 093, [arXiv:1607.07786[hep-th]]
32. H. Hayashi, S-S Kim, K. Lee, M. Taki, F. Yagi, *More on 5d descriptions of 6d SCFTs*, JHEP 10 (2016) 126, [arXiv:1512.08239 [hep-th]]
33. J. Kim, S. Kim, K. Lee, *Higgsing towards E-strings*, JHEP 01 (2021) 110, [arXiv:1510.03128 [hep-th]]
34. H. Hayashi, S-S Kim, K. Lee, F. Yagi, *6d SCFTs, 5d Dualities and Tao Web Diagrams*, JHEP 05 (2019) 203, [arXiv:1509.03300 [hep-th]]
35. H. Hayashi, Sung-Soo Kim, K. Lee, Masato Taki, Futoshi Yagi, *A new 5d description of 6d D-type minimal conformal matter*, JHEP 08 (2015) 097, [arXiv:1505.04439 [hep-th]]
36. Jungmin Kim, Seok Kim, K. Lee, *Little strings and T-duality*, JHEP 02 (2016) 170, [arXiv:1503.07277 [hep-th]]
37. Joonho Kim, Seok Kim, K. Lee, Jaemo Park, Cumrun Vafa, *Elliptic Genus of E-strings*, JHEP 09 (2017) 098, [arXiv:1411.2324 [hep-th]]
38. Jungmin Kim, Seok Kim, K. Lee, Jaemo Park, *Super-Yang-Mills theories on  $S^4 \times R$* , JHEP 08 (2014) 167 [arXiv:1405.2488 [hep-th]]
39. H.-C. Kim, S. Kim, S-S Kim, and K. Lee, *The general M5-brane superconformal index*, [arXiv:1307.7660[hep-th]]
40. C. Lee and K. Lee, *Quantum Mechanical Hamiltonian with Large Ground State Degeneracy*, Annals Phys. 331 (2013) 258, [arXiv:1211.5211[hep-th]]
41. H.-C. Kim and K. Lee, *Supersymmetric M5 Brane Theories on  $R \times CP^2$* , JHEP 1307 (2013) 072, [arXiv:1210.0853[hep-th]].
42. H.-C. Kim, S.-S. Kim and K. Lee, *5-dim Superconformal Index with Enhanced En Global Symmetry*, JHEP 10 (2012)142, [arXiv:1206.6781[hep-th]]
43. D. Gang, E. Koh, K. Lee, *Selfdual Index with Duality Wall*, JHEP 10 (2012) 187, [arXiv:1205.0069[hep-th]]
44. D. Gang, E. Koh, and K. Lee, *Line Operator Index on  $S^1 \times S^3$* , JHEP 05 (2012) 007, [arXiv:1201.5539[hep-th]]
45. H.-C. Kim, S. Kim, E. Koh, K. Lee, S. Lee, *On instantons as Kaluza-Klein modes of M5-branes*, JHEP 12 (2011) 031, [arXiv:1110.2175[hep-th]]
46. D. Gang, E. Koh, K. Lee and J. Park, *ABCD of 3d N=8 and 4 Superconformal Field Theories*, [arXiv:1108.3647[hep-th]]
47. H. Kim, S. Kim, K. Lee and J. Park, *Emergent Schrodinger geometries from mass-deformed CFT*, JHEP 08 (2011) 111, [arXiv:1106.4309[hep-th]].

48. S. Bolognesi and K. Lee *Instanton Partons in 5-dim  $SU(N)$  Gauge Theory*, Phys.Rev. D84 (2011) 106001, [arXiv:1106.3664[hep-th]] .
49. S. Bolognesi and K. Lee *1/4 BPS String Junctions and  $N^3$  Problem in 6-dim (2,0) Superconformal Theories*, Phys.Rev. D84 (2011) 126018, [arXiv:1105.5073[hep-th]] .
50. K. Lee and S.J. Lee, *1/2-BPS Wilson Loops and Vortices in ABJM Model*, JHEP 09 (2010) 004 [arXiv:1006.5589 [hep-th]]
51. K. Lee, S.m. Lee, S.j. Lee, *Nonrelativistic Superconformal M2-Brane Theory*, JHEP 09 (2009) 030, [arXiv:0902.3857 [hep-th]]
52. C.j. Kim, E.k. Koh, K. Lee, *Janus and Multifaced Supersymmetric Theories II*, Phys.Rev. D79 (2009) 126013, [arXiv:0901.0506 [hep-th]]
53. K. Lee, E. O Colgain, H. Yavartanoo, K.P. Yogendran, *BPS D0-D6 Branes in Supergravity*, JHEP 03 (2009) 009, [arXiv:0811.2086 [hep-th]]
54. K. Lee and E.J. Weinberg, *BPS Magnetic Monopole Bags*, Phys. Rev. D79 (2009) 025013, [arXiv:0810.4962 [hep-th]]
55. K. Hosomich, K. Lee, S.m. Lee, S.j. Lee, J. Park, and P. Yi, *A Nonperturbative Test of M2-Brane Theory*, JHEP 11 (2008) 058, [arXiv:0809.1771 [hep-th]]
56. K. Hosomich, K. Lee, S.m. Lee, S.j. Lee, J. Park,  *$N=5,6$  Superconformal Chern-Simons Theories and M2-branes on Orbifolds*, JHEP 09 (2008) 002, [arXiv:0806.4977 [hep-th]]
57. K. Hosomich, K.M. Lee, S.m. Lee, S.j. Lee, J. Park,  *$N=4$  Superconformal Chern-Simons Theories with Hyper and Twisted Hyper Multiplets*, JHEP 07 (2008) 091, [arXiv:0805.3662 [hep-th]]
58. K. Hosomich, K.M. Lee, S.m. Lee, S.j. Lee, J. Park, *Mass-Deformed Bagger-Lambert Theory and its BPS Objects*, Phys. Rev. D78 (2008) 066015, [arXiv:0804.2519 [hep-th]]
59. D.K. Hong, K. Lee, C. Park and H.U. Yee, *Holographic Monopole Catalysis of Baryon Decay*, JHEP 08 (2008) 018, [arXiv:0804.1326 [hep-th]]
60. Seok Kim , K. Lee, Sungjay Lee, *Dyonic Instantons in 5-dim Yang-Mills Chern-Simons Theories*, JHEP 08 (2008) 064, [arXiv:0804.1207 [hep-th]]
61. Chanju Kim, Eunkyung Koh, K. Lee, *Janus and Multifaced Supersymmetric Theories*, JHEP 06 (2008) 040, [arXiv:0802.2143 [hep-th]]
62. Jens Hoppe and K.M. Lee, *New BPS configurations of BMN matrix theory*, JHEP 06 (2008) 041, [arXiv:0712.3616 [hep-th]]
63. Min-Young Choi , Kyung Kiu Kim , Choonkyu Lee , K. Lee, *Higgs structures of dyonic instantons*, JHEP 04 (2008) 097, [arXiv:0712.0735 [hep-th]]

64. Seok Kim, K. Lee, *1/16-BPS Black Holes and Giant Gravitons in the  $AdS_5 \times S^5$  Space*, JHEP 12 (2006) 077, [hep-th/0607085]
65. K. Lee and H.-U. Yee, *BPS String Webs in the 6-dim (2,0) Theories*, JHEP 03 (2007) 057, [hep-th/0606150]
66. K. Lee and H.-U. Yee, *New  $AdS_4 \times X_7$  Geometries with  $\mathcal{N} = 6$  in M Theory*, JHEP 03 (2007) 012, [hep-th/0605214]
67. S. Kim, K. Lee, H.-U. Yee, *Supertubes in field theories*, Phys. Rev. D75 (2007) 125011, [hep-th/0603179]
68. K. Lee and H.-U. Yee, *New BPS objects in  $N=2$  supersymmetric gauge theories*, Phys. Rev. D72 (2005) 065023, [hep-th/0506256]
69. S. Kim and K. Lee, *BPS electromagnetic waves on giant gravitons*, JHEP 10 (2005) 111, [hep-th/0502007]
70. D. Bak, S. Kim, and K. Lee *All higher genus BPS membranes in the plane wave background*, JHEP 06 (2005) 035, [hep-th/0501202]
71. K.M. Lee, *Chern-Simons solitons, chiral model, and (affine) Toda model on noncommutative space*, JHEP 08 (2004) 054, [hep-th/0405244]
72. Seok Kim, K.M. Lee, Ho-Ung Yee, Pijin Yi, *The  $\mathcal{N} = 1^*$  theories on  $R^{1+2} \times S^1$  with twisted boundary conditions*, JHEP 08 (2004) 040, [hep-th/0403076]
73. S. Kim and K. Lee *Dyonic instanton as supertube between  $D-4$  branes*, JHEP 09 (2003) 035, [hep-th/0307048]
74. K. Lee, *M-theory on Less Supersymmetric PP-Waves*, Phys. Lett. B549 (2002) 213, [hep-th/0209009]
75. N. Kim, K. Lee, and P. Yi, *Deformed Matrix Theories with  $N=8$  and Fivebranes with pp Background*, JHEP 11 (2002) 009, [hep-th/0207264]
76. D. Bak and K. Lee, *Supertubes connecting  $D4$  Branes*, Phys. Lett. B544 (2002) 329, [hep-th/0206185]
77. K. Lee and S. Yi, *1/4 BPS Dyonic Calorons*, Phys. Rev. D67 (2003) 025012, [hep-th/0205274]
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79. D. Kabat, K. Lee, E. Weinberg, *QCD vacuum structure in strong magnetic fields*, Phys. Rev. D66 (2002) 014004, [hep-ph/0204120]
80. Y. Kim and K. Lee, *First and second order vortex dynamics*, Phys. Rev. D66 (2002) 045016 (2002), [hep-th/0204111]

81. C. Kim, K. Lee and S-H Yi, *Tales of D0 on D6 branes: matrix mechanics of identical particles*, Phys. Lett. B543 (2002) 107 (2002), [hep-th/0204109]
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89. K. Lee, D. Tong, S. Yi, *The moduli space of two U(1) instantons on noncommutative R<sup>4</sup> and R<sup>3</sup> × S<sup>1</sup>*, Phys.Rev. D63 (2001) 065017, [hep-th/0008092]
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91. K. Lee, B.-H. Lee, H.S. Yang, *The CP(n) Model on Noncommutative Plane*, Phys.Lett. B498 (2001) 277, [hep-th/0007140]
92. K. Lee, D. Bak, *Elongation of Moving Noncommutative Solitons*, Phys.Lett. B495 (2000) 231, [hep-th/0007107]
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94. G. Cvetič, S. K. Kang, C. S. Kim, and K. Lee, *No CPT Violation from Tilted Brane in Neutral Meson–Antimeson Systems*, Phys.Rev. D62 (2000) 057901, [hep-ph/0004155]
95. K. Lee, D. Bak and P. Yi, *Complete Supersymmetric Quantum Mechanics of Magnetic Monopoles in N=4 SYM Theory*, Phys.Rev. D62 (2000) 025009, [hep-th/9912083]
96. K. Lee, P. Yi, *Quantum Spectrum of Instanton Solitons in Five Dimensional Noncommutative U(N) Theories*, Phys.Rev. D61 (2000) 125015, [hep-th/9911186]

97. K. Lee and C.J. Houghton, *Nahm Data and the Mass of 1/4-BPS States*, Phys.Rev. D61 (2000) 106001, [hep-th/9909218]
98. K. Lee and D. Bak, *Comments on the Moduli Dynamics of 1/4 BPS Dyons*, Phys.Lett. B468 (1999) 76, [hep-th/9909035]
99. K. Lee, Q-H Park, H.J. Shin, *Vortex String Dynamics in an External Antisymmetric Tensor Field*, Nucl.Phys. B563 (1999) 461, [hep-th/9907068]
100. K. Lee, D. Bak and P. Yi, *Quantum 1/4 BPS Dyons*, Phys.Rev. D61 (2000) 045003, [hep-th/9907090]
101. K. Lee, D. Bak, C. Lee and P. Yi, *Low Energy Dynamics for 1/4 BPS Dyons*, Phys.Rev. D61 (2000) 025001, [hep-th/9906119]
102. K. Lee, *Massless Monopoles and Multipronged Strings*, Phys. Lett. B458 (1999) 53, [hep-th/9903095]
103. K. Lee, *Sheets of BPS Monopoles and Instantons with Arbitrary Simple Gauge Group*, Phys.Lett. B445 (1999) 387, [hep-th/9810110]
104. K. Lee and P. Yi, *Dyons in  $N = 4$  Supersymmetric Theories and Three-Pronged Strings*, Phys. Rev. D58 (1998) 066005, [hep-th/9804174]
105. K. Lee and C. Lu,  *$SU(2)$  Calorons and Magnetic Monopoles*, Phys. Rev. D58 (1998) 025011, [hep-th/982108]
106. K. Lee, *Instantons and Magnetic Monopoles on  $R^3 \times S^1$  with Arbitrary Simple Gauge Groups*, Phys. Lett. B426 (1998) 323, [hep-th/9802012]
107. K. Lee and C. Lu, *Two massive and one massless  $Sp(4)$  monopole*, Phys. Rev. D57 (1998) 5260, [hep-th/9709080]
108. D. Bak, C. Lee and K. Lee, *Dynamics of BPS dyons: effective field theory approach*, Phys. Rev. D57 (1998) 5239, [hep-th/9708149]
109. K. Lee and O. Tchernyshyov, *Novel Phenomena in Charged Bose Liquid*, Mod. Phys. Lett. A13 (1998) 987, [cond-mat/9707202]
110. K. Lee and P. Yi, *A Family of  $N=2$  Gauge Theories with Exact  $S$ -Duality*, Nucl. Phys. B520 (1998) 157, [hep-th/9706023]
111. K. Lee and P. Yi, *Monopoles and instantons on partially compactified  $D$ -branes*, Phys. Rev. D 56 (1997) 3711, [hep-th/9702107]
112. G. Dunne, K. Lee and C. Lu, *The finite temperature Chern-Simons coefficient*, Phys. Rev. Lett. 78 (1997) 3434, [hep-th/9612194]
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114. A. Kusenko, K.M. Lee and E.J. Weinberg, *Vacuum decay and internal symmetries* , Phys. Rev. D 55 (1997) 4903, [hep-th/9609100]
115. K.M. Lee, E.J. Weinberg and P. Yi, *Massive and massless monopoles with nonabelian charges*, Phys. Rev. D 54, 6351 (1996), [hep-th/9605229 ]
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# Research Plan

Kimyeong Lee

Theoretical Physics, especially quantum field theory and string theory, has been expanding enormously in last quarter century. My current interests are very diverse but, due to the lack of time and energy, are focused on a few topics. Here are roughly topics I am currently pursuing or hope to pursue.

1. **quantum field theory**
2. qcd confinements and strongly interacting theories
3. solitons, vortices, magnetic monopoles, instantons, supertubes
4. supersymmetric field theories
5. super conformal field theories in various dimensional space-time
6. physical mathematics and quantum field theory
7. **classical and quantum gravity**
8. cosmology, early Universe, de-Sitter space
9. black holes in flat and AdS space-time
10. **AdS-CFT correspondence**
11. supergravity and its quantization
12. **string theory and M-theory**
13. M-theory and the physics of M2, M5 branes
14. little string theories in 6 dimensional space-time
15. BPS objects and enumerative geometries
16. **quantum information, entanglements and quantum computer**
17. **generalized symmetries and category theory**
18. anyons, MTC and topological quantum field theories
19. **emergent intelligence, AI, and machine learning**