

# Seung Woo Lee, Ph. D

## CURRENT POSITION

Associate Professor  
Dept. of Brain and Cognitive Sciences (BCS),  
Korea Advanced Institute of Science and Technology (KAIST)

## CONTACT INFORMATION

Email: [lee.seungwoo@kaist.ac.kr](mailto:lee.seungwoo@kaist.ac.kr)

## PREVIOUS PROFESSIONAL POSITIONS

**Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA**

*Assistant Professor* of Neurosurgery. Nov. 2018 ~ Feb. 2023

*Instructor* in Neurosurgery. Nov. 2015 ~ Oct. 2018

**Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA**

*Postdoctoral Fellow* in Neurosurgery. (Lab PI: Prof. Shelley Fried) Jan. 2011 ~ Oct. 2015

**Inter-University Semiconductor Research Center, Seoul, Korea**

Sep. 2010 ~ Dec. 2010

*Postdoctoral Fellow.* (Lab PI: Prof. Sung June Kim)

## RESEARCH INTERESTS

Bioelectronics, Wearable Electronics, Neural Prosthesis (e.g., Retinal Implant; Cochlear Implant; Deep Brain Stimulation), Brain-Computer-Interface, Bio-MEMS, Polymer-based Microfabrication, Computational Modeling of Microelectrode/Microcoil Designs, Retinal Physiology, Cortical Physiology, Neural Stimulation & Recording System.

## EDUCATION

Seoul National University, Seoul, Korea Ph.D. Electrical Engineering Aug. 2010

Seoul National University, Seoul, Korea B.S. Electrical Engineering Feb. 2003

## BOOK CHAPTERS

Lee SW\*, Fried SI. “*Precise and reliable activation of cortex with micro-coils*” Chapter 3 in Brain-Computer Interface Research: A State-of-the-Art Summary 6 (ISBN 978-3-319-64372-4), pp. 21-33, Christoph Guger, Brendan Allison, Mikhail Lebedev, Eds. Springer Briefs in Electrical and Computer Engineering, Springer, Cham, Aug. 22, 2017. doi: [https://doi.org/10.1007/978-3-319-64373-1\\_3](https://doi.org/10.1007/978-3-319-64373-1_3) (\*Corresponding Author)

## PATENTS

Lee SW, Fried SI. “*Selective Activation of Cortex using Bent Micro-wires to Magnetically Stimulate Neurons*” registered in United States (Registration#: US 11,007,372 B2), May 18, 2021

Fried SI, Lee SW. “*Magnetic neural stimulator and method of activation of neural tissue with same*” registered in United States (Registration#: US 9,993,656 B2), Jun 12, 2018.

Lee SW, Fried SI. “*Selective Activation of Cortex using Bent Micro-wires to Magnetically Stimulate Neurons*” PCT/US17/23605, Mar 22, 2017.

Kim SJ, Lee SW, Lee CJ, An S. “*Micro-electrode Array Package using Liquid Crystal Polymer and Manufacturing Method thereof*” registered in United States (Registration#: US 8,886,277 B2), Nov 11, 2014.

Fried SI, Lee SW. “*Magnetic neural stimulator and method of activation of neural tissue with same*” PCT/US14/40622, Jun 3, 2014.

Eom KS, Kim SJ, Jeong JS, Lee SW. “*Apparatus and System for Wireless Power Transmission Using Dual Transmitter Coils*” registered in Republic of Korea (Registration#: 10-1230515-0000), Jan 31, 2013.

Kim SJ, Lee SW, Lee CJ, An S. “*Micro-electrode Array Package using Liquid Crystal Polymer and Manufacturing Method thereof*” PCT/KR2009/004558, Aug 14, 2009.

Kim SJ, Lee SW, Lee CJ, An S. “*Micro-electrode Array Package using Liquid Crystal Polymer*” registered in Republic of Korea (Registration#: 10-1144532-0000), May 2, 2012.

Kim SJ, Lee SW, Lee CJ, An S. “*Micro-electrode Array Package using Liquid Crystal Polymer and Manufacturing Method thereof*” registered in Republic of Korea (Registration#:10-108806-0000), Nov 25, 2011.

## **AWARDS**

71<sup>st</sup> Annual Meeting of the MGH Scientific Advisory Committee (SAC) meeting, Apr. 3-4, 2019, Boston, MA, USA.

- **The SAC 2019 Poster of Distinction Award & Travel Grant.**

The 10<sup>th</sup> World Congress on the Relationship between Neurobiology and Nano-Electronics Focusing on Artificial Vision (2017 The Eye and The Chip), Sep. 24-26, 2017, Detroit, MI, USA.

- **Bill and Happy Rands Outstanding Poster Awards – Award for Clinical Potential.**

6<sup>th</sup> Brain-Computer Interface Meeting, May. 30 - Jun. 3, 2016, Pacific Grove, CA, USA.

- **The Annual BCI Research Award 2016.**

2<sup>nd</sup> Annual Minnesota Neuromodulation Symposium, Apr. 10-11, 2014, Minneapolis, MN, USA.

- **Best Poster Award – 2nd Place.**

2<sup>nd</sup> Annual Minnesota Neuromodulation Symposium, Apr. 10-11, 2014, Minneapolis, MN, USA.

- **Domestic and International Travel Award.**

Association for Research in Vision and Ophthalmology (ARVO) 2010 Annual Meeting, May 2-6, 2010, Fort Lauderdale, FL, USA.

- **International Travel Grant Award.**

2<sup>nd</sup> International Conference on Neuroprosthetic Devices, Feb. 27-28, 2010, Beijing, China.

- **Best Student Paper Award.**

**(Invited to Poster Blitz Oral presentation at the Neural Interfaces Conference (NIC) 2010 in Long Beach, CA, USA)**

## **JOURNAL PUBLICATIONS**

Liu X, Whalen AJ, Ryu SB, **Lee SW**, Fried SI, Kim K, Cai C, Lauritzen M, Bertram N, Chang B, Yu T, Han A. MEMS micro-coils for magnetic neurostimulation. *Biosensors and Bioelectronics*, Vol. 227, Article no. 115143, May. 1. 2023. doi: <https://doi.org/10.1016/j.bios.2023.115143>

**Lee SW\***, Fried SI. Micro-magnetic stimulation of primary visual cortex induces focal and sustained activation of secondary visual cortex. *Philosophical Transactions of the Royal Society A*, Vol. 380, Issue. 2228, Jul. 25. 2022. doi: <https://doi.org/10.1098/rsta.2021.0019> (\*Corresponding Author)

Le HT, Haque RI, Ouyang Z, **Lee SW**, Fried SI, Zhao D, Qiu M, Han A. MEMS inductor fabrication and emerging applications in power electronics and neurotechnologies. *Microsystems & Nanoengineering*, Vol. 7, Article 59, Aug. 11. 2021. doi: <https://doi.org/10.1038/s41378-021-00275-w>

Paulk AC, Yang JC, Cleary DR, Soper DJ, Halgren M, O'Donnell AR, Lee SH, Ganji M, Ro YG, Oh H, Hossain L, Lee J, Tchoe Y, Rogers N, Kiliç K, Ryu SB, **Lee SW**, Hermiz J, Gilja V, Ulbert I, Fabó D, Thesen T, Doyle WK, Devinsky O, Madsen JR, Schomer DL, Eskandar EN, Lee JW, Maus D, Devor A, Fried SI, Jones PS, Nahed BV, Ben-Haim S, Bick SK, Richardson RM, Raslan AM, Siler DA, Cahill DP, Williams ZM, Cosgrove GR, Dayeh SA, Cash SS. Microscale physiological events on the human cortical surface. *Cerebral Cortex*, Vol. 31, no. 8, pp. 3678-3700, Aug. 1. 2021. doi: <https://doi.org/10.1093/cercor/bhab040>

- Featured as the Front Cover of the *Cerebral Cortex August Issue, 2021*.

**Lee SW\***. Selective activation of cortical columns using multichannel magnetic stimulation with a bent flat microwire array. *IEEE Transactions on Biomedical Engineering*, Vol. 68, no. 7, pp. 2164-2175, Jul. 2021. doi: <https://doi.org/10.1109/TBME.2020.3033491> (\*Corresponding Author)

- Selected as a feature article, in the *IEEE TBME July Issue, 2021*.

Ryu SB, Paulk AC, Yang JC, Ganji M, Dayeh SA, Cash SS, Fried SI, **Lee SW\***. Spatially confined responses of mouse visual cortex to intracortical magnetic stimulation from micro-coils. *Journal of Neural Engineering*, Vol. 17, no. 5, Article 056036, Oct. 21. 2020. doi: <https://doi.org/10.1088/1741-2552/abbd22> (\*Corresponding Author)

- Featured in *Massachusetts General Hospital News Release* (Advanced in Motion), entitled “MAGNETIC STIMULATION OF VISUAL CORTEX CREATES MORE FOCAL NEURAL ACTIVITY” on Dec 11, 2020. <https://advances.massgeneral.org/neuro/journal.aspx?id=1764>

Yu H, Enayati S, Chang K, Cho K, **Lee SW**, Talib M, Zihlavnikova K, Xie J, Achour H, Fried SI, Utheim TP, Chen DF. Noninvasive Electrical Stimulation Improves Photoreceptor Survival and Retinal Function in Mice with Inherited Photoreceptor Degeneration. *Investigative Ophthalmology & Visual Science*, Vol. 61, no. 4, Article 5, Apr. 9. 2020. doi: <https://doi.org/10.1167/iovs.61.4.5>

Ganji M, Paulk A, Yang J, Vahidi N, Lee SH, Liu R, Hossain L, Arneodo E, Thunemann M, Shigyo M, Tanaka A, Ryu SB, **Lee SW**, Tchoe Y, Marsala M, Devor A, Cleary D, Martin J, Oh H, Gilja V, Gentner T, Fried S, Halgren E, Cash S, Dayeh SA. Selective Formation of Porous Pt Nanorods for Highly Electrochemically Efficient Neural Electrode Interfaces. *Nano Letters*, Vol. 19, no. 9, Aug. 1. 2019. doi: <https://doi.org/10.1021/acs.nanolett.9b02296>

**Lee SW\***, Thyagarajan K, Fried SI. Micro-coil design influences the spatial extent of responses to intracortical magnetic stimulation. *IEEE Transactions on Biomedical Engineering*, Vol. 66, no. 6, pp. 1680-1694, Jun. 2019. doi: <https://doi.org/10.1109/TBME.2018.2877713> (\*Corresponding Author)

- Featured as the Front Cover of the *IEEE TBME June Issue, 2019*.
- Selected as a feature article, in the *IEEE TBME June Issue, 2019*.

Freeman DK, O'Brien JM, Kumar P, Daniels B, Irion RA, Shraytah L, Ingersoll BK, Magyar AP, Czarnecki A, Wheeler J, Coppeta JR, Abban MP, Gatzke R, Fried SI, Lee SW, Duwel AE, Bernstein JJ, Widge AS, Hernandez-Reynoso A, Kanneganti A, Romero-Ortega MI, Cogan SF. A Sub-millimeter, Inductively Powered Neural Stimulator. *Frontiers in Neuroscience*, Vol. 11, no. 659, Nov. 27. 2017. doi: <https://doi.org/10.3389/fnins.2017.00659>

Lee SW, Fried SI. Enhanced control of cortical pyramidal neurons with micromagnetic stimulation. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, Vol. 25, no. 9, pp. 1375-1386, Sep. 2. 2017. doi: <https://doi.org/10.1109/tnsre.2016.2631446>

Lee SW, Fallegger F, Casse BDF, Fried SI. Implantable microcoils for intracortical magnetic stimulation. *Science Advances*, Vol. 2, no. 12, e1600889, Dec. 9. 2016. doi: <https://doi.org/10.1126/sciadv.1600889>

- Featured in *IEEE Spectrum*, entitled "Tiny Implantable "Microcoils" in the Brain Activate Neurons Via Magnetic Fields" on Dec 9, 2016.
- Featured as Cover Story in *MIT Technology Review*, entitled "This Technology Could Finally Make Brain Implants Practical" on Feb 9, 2017.
- Featured in *Popular Science*, entitled "THE NEXT GENERATION OF BRAIN IMPLANT IS A TEENY TINY COIL: THE MICRO COILS MAKE MIND-CONTROLLED PROSTHETICS EASIER TO USE" on Dec 9, 2016.
- Featured in *Medical Xpress*, entitled "Magnetic stimulation may provide more precise, reliable activation of neural circuitry" on Dec 9, 2016.
- Featured in *News Medical Life Sciences*, entitled "MGH researchers develop magnetic coils for selective and reliable neural stimulation" on Dec 9, 2016.
- Featured in *Vocativ*, entitled "New Magnetic Brain Implants Pave The Way For Our Cyborg Future" on Dec 9, 2016.
- Featured in *Massachusetts General Hospital News Release*, entitled "Magnetic stimulation may provide more precise, reliable activation of neural circuitry" on Dec 9, 2016.

Lee SW, Fried SI. Suppression of subthalamic nucleus activity by micromagnetic stimulation. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, Vol. 23, no. 1, pp. 116-127, Jan. 6. 2015. doi: <https://doi.org/10.1109/tnsre.2014.2348415>

- Selected as a featured article in *IEEE Transactions on Neural Systems and Rehabilitation Engineering* on Jan 6, 2015

Jeong J, Lee SW, Min KS, Kim SJ. A novel multilayered planar coil based on biocompatible liquid crystal polymer for chronic implantation. *Sensors and Actuators A: Physical*, Vol. 197, no. 1, pp. 38-46, Aug. 2013. doi: <https://doi.org/10.1016/j.sna.2013.04.001>

Lee SW, Eddington DK, Fried SI. Responses to pulsatile subretinal electric stimulation: effects of amplitude and duration. *Journal of Neurophysiology*, Vol. 109, no. 7, pp. 1954-1968, Apr. 2013. doi: <https://doi.org/10.1152/jn.00293.2012>

Fang Y, Cho K-S, Tchandre K, Lee SW, Fried SI, Sun X, Chen DF. Ephrin-A3 Suppresses Wnt Signaling to Control Retinal Stem Cell Potency. *Stem Cells*, Vol. 31, no. 2, pp. 349-359, Feb. 2013. doi: <https://doi.org/10.1002/stem.1283>

Lee SE, Jun SB, Lee HJ, Kim J, Lee SW, Shin HC, Chang JW, Kim SJ. A Flexible Neural Depth Probe using Liquid Crystal Polymer. *IEEE Transactions on Biomedical Engineering*, Vol. 59, no. 7, pp. 2085-2094, Jul. 2012. doi: <https://doi.org/10.1109/tbme.2012.2196274>

Bonmassar G\*, **Lee SW\***, Freeman DK, Polasek M, Fried SI, Gale JT. Microscopic Magnetic Stimulation of Neural Tissue. *Nature Communications*, 3, article no. 921, Jun. 26. 2012. doi: <https://doi.org/10.1038/ncomms1914> (\***equally contributed to the paper**)

- Featured in press release for *Nature Communications*, entitled “Neuroscience: Magnetising neurons” on June 26, 2012.
- Featured in *Massachusetts General Hospital News Release*, entitled “Tiny Magnetic Coils Modulate Neural Activity, May Be Safer for Deep-Brain Implants” on June 26, 2012.
- Featured in *Science Daily*, entitled “Tiny Magnetic Coils Modulate Neural Activity, May Be Safer for Deep-Brain Implants” on June 26, 2012.
- Featured as Headline news in *Scientific American Mind*, entitled “Stimulating the Brain with Microscopic Magnets” on Jan. 31, 2013.

Bae SH, Che J-H, Jeong J, Kim ET, **Lee SW**, Koo K-I, Seo J-M, Suaning GJ, Lovell NH, Cho D-ID, Kim SJ, Chung H. In Vitro Biocompatibility of Various Polymers based Microelectrode Arrays for Retinal Prosthesis. *Investigative Ophthalmology & Visual Science*, Vol. 53, no. 6, pp. 2653-2657, May. 2012. doi: <https://doi.org/10.1167/iovs.11-9341>

Jeong J, **Lee SW**, Min K, Shin S, Jun SB, Kim SJ. Liquid Crystal Polymer (LCP), an Attractive Substrate for Retinal Implant. *Sensors and Materials*, Vol. 24, no. 4, pp. 189-203, Apr. 2012. doi: <https://doi.org/10.18494/SAM.2012.823>

**Lee SW**, Min K, Jeong J, Kim J, Kim SJ. Monolithic Encapsulation of Implantable Neuroprosthetic Devices Using Liquid Crystal Polymers. *IEEE Transactions on Biomedical Engineering*, Vol. 58, no. 8, pp. 2255-2263, Aug. 2011. doi: <https://doi.org/10.1109/TBME.2011.2136341>

**Lee SW**, Seo J-M, Ha S, Kim ET, Chung H, Kim SJ. Development of Microelectrode Arrays for Artificial Retinal Implants using Liquid Crystal Polymers. *Investigative Ophthalmology & Visual Science*, Vol. 50, no. 12, pp. 5859-5866, Dec. 2009. doi: <https://doi.org/10.1167/iovs.09-3743>

Kim ET, Kim C, **Lee SW**, Seo J-M, Chung H, Kim SJ. Feasibility of Micro Electrode Array (MEA) Based on Silicone-Polyimide Hybrid for Retina Prosthesis. *Investigative Ophthalmology & Visual Science*, Vol. 50, no. 9, pp. 4337-4341, Sep. 2009. doi: <https://doi.org/10.1167/iovs.08-2500>

## **CONFERENCE PROCEEDINGS**

Zaeimbashi M, Wang Z, **Lee SW**, Cash SS, Fried SI, Sun N. Micro-solenoid inductors with magnetic core for neural stimulation. The 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '18), Honolulu, HI, USA, Jul 17-21, 2018. doi: <https://doi.org/10.1109/EMBC.2018.8512729>

**Lee SW**, Fried SI. Magnetic control of cortical pyramidal neuron activity using a micro-coil. The 7th International IEEE/EMBS Conference on Neural Engineering (NER '15), Montpellier, France, Apr 22-24, 2015. doi: <https://doi.org/10.1109/NER.2015.7146611>

**Lee SW**, Fried SI. The response of L5 pyramidal neurons of the PFC to magnetic stimulation from a micro-coil. The 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '14), Chicago, IL, USA, Aug 26-30, 2014. doi: <https://doi.org/10.1109/EMBC.2014.6945027>

**Lee SW**, Fried SI. Magnetic stimulation of subthalamic nucleus neurons using micro-coils for deep brain stimulation. 6th International IEEE/EMBS Conference on Neural Engineering (NER '13), San

Diego, CA, USA, Nov 6-8, 2013. doi: <https://doi.org/10.1109/NER.2013.6695889>

Jeong J, Lee SW, Min K, Eom K, Bae SH, Kim SJ. Eye-Surface Conformable Telemetric Structure for Polymer-based Retinal Prosthesis. The 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '11), Boston, MA, USA, Aug 30- Sep 3, 2011. doi: <https://doi.org/10.1109/IEMBS.2011.6090256>

Zhou J, Woo SJ, Park SI, Lee SW, Chung H, Kim SJ. A Neurostimulator Design for Long-term Animal Experiments. Frontiers in the Convergence of Bioscience and Information Technologies (FBIT 2007), Jeju, Korea, Oct. 11-13, 2007. doi: <https://doi.org/10.1109/FBIT.2007.67>

## **REVIEWER ACTIVITIES**

IEEE Transactions on Biomedical Engineering (IEEE-TBME)  
IEEE Transactions on Neural Systems and Rehabilitation Engineering (IEEE-TNSRE)  
IEEE/ASME Journal of Microelectromechanical Systems (IEEE-JMEMS-ASME)  
IEEE Sensors Letters,  
Investigative Ophthalmology & Visual Science (IOVS),  
Journal of Sensors and Materials (JSM),  
Physica Medica: European Journal of Medical Physics (EJMP).

## **RESEARCH SUPPORT**

MSIT / NRF Brain Pool Plus Program                      RS-2023-00220237                      05/01/2023 – 12/31/2032  
Title: Development of Microcoil-based Brain-Computer Interfaces  
Role: Principal Investigator

NIH / NINDS            1 R01 NS110575    06/15/2019 – 05/31/2023  
Title: Investigating the response of CNS neurons to electric and magnetic stimulation. (PI: Fried)  
Role: Co-Investigator (Key Person)

DoD Vision Research Program (VRP)    03/01/2019 – 01/31/2023  
Title: A Micro-Coil Based Cortical Visual Prosthesis.  
Role: Principal Investigator (a site PI)

NIH / NEI            1 R01 EY029022    04/01/2018 – 01/31/2023  
Title: Optimization of micro-coil arrays for precise stimulation of visual cortex.  
Role: Principal Investigator

NIH / NINDS            1 U01 NS099700    09/01/2016 – 06/30/2019  
Title: Micro-coil implants for cortical activation. (PI: Fried)  
Role: Co-Investigator (Key Person)

## **ORAL PRESENTATIONS**

Lee SW. Precise activation of the cortex with micro-coil implants. Biomedical Convergence Program for Personalized Healthcare, College of Medicine, Chungbuk National University, Cheongju-si, Chungcheongbuk-do, Korea, Dec 7, 2023. (**Invited lecture at the BK21 seminar**)

Lee SW. Precise activation of the cortex with micro-coil implants. IBS Center for Cognition and Sociality, Institute for Basic Science (IBS), Daejeon, Korea, Sep 13, 2023. (**Invited seminar at the**

**IBS Life Science Cluster)**

**Lee SW.** Next-generation visual prosthetics based on micro-coils. Department of Biomedical Science and Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju, Korea, Sep 9, 2023. **(Invited lecture at the BMSE 2023 Fall seminar)**

**Lee SW.** Micro-coil Implants for Precise cortical activation. Department of Electronic and Electrical Engineering, Ewha Womans University, Seoul, Korea, Jul 14, 2023. **(Invited lecture at the BK21 seminar)**

**Lee SW.** Micro-coil Implants for Precise Cortical Activation. The 61<sup>st</sup> Spring Conference of the Korean Society of Medical & Biological Engineering, KMEDI-hub, Daegu, South Korea, May 13, 2023. **(Invited Talk)**

**Lee SW.** Implantable microcoil arrays for cortical visual prostheses. Department of Biomedical Engineering, Yonsei University Mirae campus, South Korea, Jan. 5, 2022. **(Invited lecture at the BK21 seminar, Zoom meeting)**

**Lee SW, Fried SI.** Micro-magnetic Stimulation of Primary Visual Cortex (VI) Elicits Focal Activation of Secondary Visual Cortex (V2). Virtual meeting via Zoom, 12th World Research Congress on the Relationship between Neurobiology and Nano-Electronics Focusing on Artificial Vision (2021 The Eye and The Chip), Detroit, MI, USA, Oct. 5, 2021. **(Abstract)**

**Lee SW.** Implantable microcoil arrays for cortical visual prostheses. Korean-American Scientists and Engineers Association (KSEA) New England Chapter April Monthly Seminar – Zoom meeting, Apr. 30, Friday 7 pm ET, 2021. **(Invited Seminar)**

**Lee SW.** Implantable microcoil arrays for high-resolution cortical stimulation. Department of Neurosurgery, Yonsei University College of Medicine, Seoul, South Korea, Jan. 22, 2021. **(Invited Seminar)**

**Lee SW.** Implantable microcoils for intracortical magnetic stimulation. Brain Science Institute, Korea Institute of Science and Technology (KIST), Seoul, South Korea, Jul. 10, 2019. **(Invited Talk at 2019 BSI Spring Seminar Series)**

**Lee SW.** Towards improved stimulation methods with neural prosthetics. Department of Electronic and Electrical Engineering, Ewha Womans University, Seoul, South Korea, Dec. 28, 2018. **(Invited Seminar)**

**Lee SW.** Microcoil implants for high-resolution neural interfaces. Department of Electrical and Computer Engineering, Seoul National University, Seoul, South Korea, Dec. 27, 2018. **(Invited Seminar)**

**Lee SW, Fried SI.** Development of Implantable Microcoils for Precise Activation of Cortex. The 39<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society, International Convention Center, Jeju, South Korea, Jul. 12, 2017. **(Abstract)**

**Lee SW, Fried SI.** Precise Activation of Primary Visual Cortex using Implantable Micro-coils. The 6<sup>th</sup> Military Vision Symposium on Ocular & Vision Injury, Schepens Eye Research Institute of Massachusetts Eye and Ear, Harvard Medical School, Boston, MA, USA, Mar. 30, 2017.

**Lee SW, Kim SJ.** Flexible Polymer-based Retinal Prostheses. Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, Jul. 13, 2010. **(Invited Seminar)**

**Lee SW, Bae SH, Jeong J, Eom KS, Seo J-M, Chung H, Kim SJ. Monolithically Encapsulated Retinal Implant System using Liquid Crystal Polymers. The 39<sup>th</sup> Neural Interfaces Conference, Long Beach, CA, USA, Jun. 21-23, 2010. (Invited Poster blitz oral presentation)**

**Lee SW, Kim ET, Jang J, Jeong J, Seo J-M, Chung H, Kim SJ. Flexible Microelectrode Arrays for Retinal Prostheses. The 2<sup>nd</sup> International Conference on Neuroprosthetic Devices, Beijing, China, Feb. 27-28, 2010. (Best student paper award)**