Ji Ho Park

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INTERESTS

Developing and implementing synthetic biological and nanotechnological solutions to medical and environmental problems

Areas: Nanotechnology in cancer, brain and eye, systems nanotechnology, biomaterials, programming synthetic biosystems, and biosynthetic interfaces

EDUCATION

University of California, San Diego (UCSD)

Ph.D., Materials Science 2009

Advisor: Michael J. Sailor, Ph.D. (Department of Chemistry and Biochemistry, Bioengineering Nanoengineering, UCSD)

Co-advisors: Sangeeta N. Bhatia, M.D., Ph.D. (Division of Health Sciences and Technology, MIT), Erkki Ruoslahti, M.D., Ph.D. (Cell Biology, Sanford-Burnham Institute)

Dissertation: "Cooperative Nanomaterials Systems for Cancer Diagnosis & Therapeutics"

Yonsei University, South Korea

M.S., Medical Science (Biomaterials & Bioengineering) 2004

Department of Dental Biomaterials and Bioengineering, College of Dentistry

Graduate Student of Brain Korea 21 Project for Medical Science, Yonsei University

Advisor: Kyoung Nam Kim, D.D.S., Ph.D.

Thesis: "Poly(α-hydroxy esters)-Coated Porous Collagen Conduit for Nerve Regeneration"

Yonsei University, South Korea

B.S., Metallurgical Engineering 2002

Department of Metallurgical Engineering, College of Engineering

RESEARCH EXPERIENCE

University of California, Berkeley

Postdoctoral researcher 2009 - 2010
Advisor: Peidong Yang, Ph.D. (Department of Chemistry)
- Cell endoscopy with nanowire probe (NIH)
- Harvesting electricity from microorganisms (DOE)

Massachusetts Institute of Technology
Visiting graduate student researcher 2 or 3 months visit per year during 2006 - 2009
Advisor: Sangeeta N. Bhatia, M.D., Ph.D. (Division of Health Sciences and Technology)
- Nanodevice for exponentially amplifying in vivo targeting (NIH/NCI)
- Engineering of multifunctional nanoparticles (NIH/BRP)

Sanford-Burnham Medical Research Institute
Graduate student researcher 2006 – 2009
Advisor: Erkki Ruoslahti, M.D., Ph.D. (Division of Tumor Microenvironment)
- Nanodevice for exponentially amplifying in vivo targeting (NIH/NCI)
- Smart, multifunctional, all-in-one platform capable of targeting tumors and delivering payloads of therapeutics (NIH/NCI)
- Engineering of multifunctional nanoparticles (NIH/BRP)

University of California, San Diego
Graduate student researcher 2004 - 2009
Advisor: Michael J. Sailor, Ph.D. (Department of Chemistry and Biochemistry, Bioengineering Nanoengineering, UCSD)
Mentors: Sangeeta N. Bhatia, M.D., Ph.D. (Division of Health Sciences and Technology, MIT), Erkki Ruoslahti, M.D., Ph.D. (Cell Biology, Sanford-Burnham Institute)
- Lap-on-a-droplet for biomedical devices and biosensors using porous silicon-based photonic crystals (NSF)
- Microfabrication of porous silicon photonic crystal particles using lithography
- Nanodevice for exponentially amplifying in vivo targeting (NIH/NCI)
- Smart, multifunctional, all-in-one platform capable of targeting tumors and delivering payloads of therapeutics (NIH/NCI)
- Engineering of multifunctional nanoparticles (NIH/BRP)

Yonsei University, South Korea
Graduate student researcher 2002 - 2004
Brain Korea 21 Project for Medical Science
Department of Dental Biomaterials and Bioengineering, College of Dentistry
Advisor: Kyoung Nam Kim, D.D.S., Ph.D.
- Electrochemical properties of metal devices used in the dental fields (dental implant, wire, bracket, and so on)
- Titanium alloy (Ti-Ag and Ti-Au) for biomedical and dental applications
- Super stainless steel for biomedical and dental applications
- Bioactive coating on titanium using electrodeposition methods
- Functional chitosan barrier membrane for guided tissue regeneration
- Nerve regeneration technique for medical treatment of oral and maxillofacial nerve damage (Medical Science and Engineering Research Program of the

KOSEF)
- Ceramics/polymers biomaterials for orofacial hard tissue regeneration (Medical Science and Engineering Research Program of the KOSEF)

PUBLICATIONS

At KAIST

In 2011,

32. "Selective Stealth Properties of Long-Circulating Magnetic Nanoworms" Priya Prakash Karmali, Ying Chao, **Ji-Ho Park**, Michael J. Sailor, Erkki Ruoslahti and Dmitri Simberg, submitted to *Nano Lett*.

31. "Nanowire-Based Single Cell Endoscopy" **Ji-Ho Park***, Ruoxue Yan*, Yeonho Choi, Chuljoon Heo, Seung-Man Yang, Luke P. Lee, and Peidong Yang. revision in *Nature Nanotech*. (*equal contribution)

30. "Nanoparticles that Communicate In Vivo to Amplify Tumour Targeting" Geoffrey von Maltzahn, **Ji-Ho Park**, Kevin Y. Lin, Neetu Singh, Christian Schwöppe, Rolf Mesters, Wolfgang E. Berdel, Erkki Ruoslahti, Michael J. Sailor, and Sangeeta N. Bhatia, *Nature Mater*. 10 (2011) 545-552.
- Featured in *Nature news* (Jun 19, 2011), *MIT news* (Jun 20, 2011), *UCSD news* (Jun 20, 2011), *Nature Mater.* [10 (2011) 482-483], *The Economist* (Jun 21, 2011), *Chemical & Engineering News* (Jun 27, 2011), *Scientific American* (Jul 8, 2011), *Nature Rev. Cancer* [11 (2011) 537] and *The Economist* (Sep 3, 2011)

Prior to joining KAIST (2004 ~ 2010),

29. "NMR Relaxation and Magnetic Properties of Superparamagnetic Nanoworms" Yves Gossuin, Sabrina Disch, Quoc L. Vuong, Pierre Gillis, Raphael P. Hermann, **Ji-Ho Park**, and Michael J. Sailor. *Contrast Media Mol. Imaging*, 5 (2010) 318-322.

28. "Magnetic Luminescent Porous Silicon Microparticles for Localized Delivery of Molecular Drug Payloads" Luo Gu, **Ji-Ho Park**, Duong Kim, Erkki Ruoslahti, and Michael J. Sailor. *Small (Frontispiece)* 22 (2010) 2546-2552.

27. "Nanoparticle-Induced Vascular Blockade in Human Prostate Cancer" Lilach Agemy, Kazuki N. Sugahara, Venkata Ramana Kotamraju, Kunal Gujraty, Olivier M. Girard, Yuko Kono, Robert F. Mattrey, **Ji-Ho Park**, Michael J. Sailor, Ana I. Jimenez, Carlos Cativiela, David Zanuy, Francisco J. Sayago, Carlos Aleman, Ruth Nussinov and Erkki Ruoslahti, *Blood* 116 (2010) 2847-2856.

26. "Cooperative Nanoparticles for Tumor Detection and Photothermally Triggered Drug Delivery" **Ji-Ho Park**, Geoffrey von Maltzahn, Luvena Ong, Andrea Centrone, T. Alan

Hatton, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor. *Adv. Mater.* 22 (2010) 880-885.
- Featured as "*Advances in Advance*" and *NCI/NIH Nanotech News* (Mar, 2010)

25. "Cooperative Nanomaterial System to Sensitize, Target, and Treat Tumors" **Ji-Ho Park**, Geoffrey von Maltzahn, Mary Jue Xu, Valentina Fogal, Venkata Ramana Kotamraju, Erkki Ruoslahti, Sangeeta N. Bhatia, & Michael J. Sailor. *Proc. Natl. Acad. Sci. USA.* 107 (2010) 981-986.
- Featured in "*This Week in PNAS*"
- Featured in *UCSD news* (Jan 4, 2010), *MIT news (*Jan 6, 2010), *NCI/NIH Nanotech News* (Jan, 2010), *Nature Reviews Drug Discovery* [Research highlight, 9 (March 2010) 194], *The Epoch Times* (Mar 10, 2010), *Laboratory News* (Mar 11, 2010) and *The Scientist* (Apr 2010, volume 24, page 69).

24. "Contact Activation of Kallikrein-Kinin System by Superparamagnetic Iron Oxide Nanoparticles *in vitro* and *in vivo*" Dmitri Simberg, Wan-Ming Zhang, Sergei Merkulov, Keith McCrae, **Ji-Ho Park**, Michael J. Sailor and Erkki Ruoslahti. *J. Controlled Release* 140 (2009) 301-305.

23. "A Surface Charge Study on Cellular Uptake Behaviors of F3 Peptide Conjugated Iron Oxide Nanoparticles" Yu Zhang, Mo Yang, **Ji-Ho Park**, Michael J. Sailor, Mihri Ozkan, and Cengiz Ozkan, *Small* 5 (2009) 1990-1996.

22. "SERS-Coded Gold Nanorods as a Multifunctional Platform for Densely-Multiplexed Near-Infrared Imaging and Photothermal Heating" Geoffrey von Maltzahn, Andrea Centrone, **Ji-Ho Park**, Renuka Ramanathan, Michael J. Sailor, T. Alan Hatton, Sangeeta N. Bhatia, *Adv. Mater.* 21 (2009) 3175-3180.
- Featured in *Nature Mater.* [8 (2009) 453-454], *NCI/NIH Nanotech News* (Jun, 2009)

21. "Differential Proteomics Analysis of the Surface Heterogeneity of Dextran Iron Oxide Nanoparticles and the Implications for Their *In Vivo* Clearance" Dmitri Simberg, **Ji-Ho Park**, Priya Karmali, Wan-Ming Zhang, Sergei Merkulov, Keith McCrae, Sangeeta N. Bhatia, Michael J. Sailor, and Erkki Ruoslahti, *Biomaterials*, 30 (2009) 3926-3933.

20. "Computationally-Guided Photothermal Tumor Destruction using Long-Circulating Gold Nanorod Antennas" Geoffrey von Maltzahn, **Ji-Ho Park**, Amit Agrawal, Nanda Kishor Bandaru, Sarit K. Das, Michael J. Sailor, and Sangeeta N. Bhatia, *Cancer Res. (Cover Article),* 69 (2009) 3892-3900.
- Featured in *Nature Mater.* [8 (2009) 453-454], *NCI/NIH Nanotech News* (Jun, 2009)

19. "Biodegradable Luminescent Porous Silicon Nanoparticles for *in vivo* Applications" **Ji-Ho Park**, Luo Gu, Geoffrey von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor, *Nature Mater.* 8 (2009) 331-336.
- Featured in *UCSD news* (Feb 23, 2009), *Technology Review (*Feb 23, 2009), *Chemical & Engineering News* (Feb 24, 2009), *NCI/NIH Nanotech News* (Mar, 2009), *Nature Mater.* [8 (2009) 252-253], *Discovery Channel* (Mar 30, 2009), *Future Oncology* (Apr, 2009, 5(3) 289), *Materials today* (Apr 12, 2009), and NSF Discovery Article in the front page of NSF website (May 4, 2009).
- Selected as the FAST BREAKING PAPER in Materials Science in *Science Watch* (Apr 2010,

which had the highest percentage increase in citations in Essential Science Indicators of Thomson Reuters)

18. "Systematic Surface Engineering of Magnetic Nanoworms for *in vivo* Tumor Targeting" **Ji-Ho Park**, Geoffrey von Maltzahn, Lianglin Zhang, Austin M. Derfus, Dmitri Simberg, Todd J. Harris, Sangeeta N. Bhatia, Erkki Ruoslahti, and Michael J. Sailor, *Small,* 5 (2009) 694-700.

17. "Oxidation-Triggered Release of Fluorescent Molecules or Drugs from Mesoporous Si Microparticles" Elizabeth C. Wu, **Ji-Ho Park**, Jennifer S. Park, Ester Segal, Frédérique Cunin, and Michael J. Sailor, *ACS Nano,* 2 (2008) 2401-2409.

16. "Micellar Hybrid Nanoparticles for Simultaneous Magneto-Fluorescent Imaging and Drug Delivery" **Ji-Ho Park**, Geoffrey von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor, *Angew. Chem. Int. Ed.* 47 (2008) 7284-7288.
- Featured in *UCSD news* (Sep 12, 2008), *NCI/NIH Nanotech News* (Sep, 2008)

15. "*In vivo* Tumor Cell Targeting with "Click" Nanoparticles" Geoffrey von Maltzahn*, Yin Ren*, **Ji-Ho Park**, Dal-Hee Min, Venkata Ramana Kotamrju, Jayanthi Jayakumar, Valentina Fogal, Michael J. Sailor, Erkki Ruoslahti, and Sangeeta N. Bhatia, *Bioconjugated Chem.* 19 (2008) 1570-1578.
*These authors contributed equally.
- Listed as "The most accessed article" in *Bioconjugate Chemistry* during 2008

14. "Protease-Triggered Unveiling of Bioactive Nanoparticles" Todd J. Harris, Geoffrey von Maltzahn, Matthew E. Lord, **Ji-Ho Park**, Amit Agrawal, Dal-Hee Min, Michael J. Sailor, and Sangeeta N. Bhatia, *Small.* 4 (2008) 1307-1312.

13. "Magnetic Iron Oxide Nanoworms for Tumor Targeting and Imaging" **Ji-Ho Park**, Geoffrey von Maltzahn, Lianglin Zhang, Michael P. Schwartz, Sangeeta N. Bhatia, Erkki Ruoslahti, and Michael J. Sailor, *Adv. Mater. (Cover Article)* 20 (2008) 1630-1635.
- Featured as "*Advances in Advance*"
- Featured in *UCSD news* (May 6, 2008), *MRS news* (May 8, 2008), *Discovery Channel* (May 12, 2008), *ABC news* (May 13, 2008), *FOX news live* with live interview *(*May 14, 2008)**,** *Technology Review (*May 14, 2008), *NCI/NIH Nanotech News* (May 21, 2008), *Materials Views* (June, 2008), *Analytical Chemistry* (July 1, 2008), *Popular Science* (Nov, 2008) and *Illustreret Videnskab* (Nov, 2008).
- Listed as "The most accessed article" in *Advanced Materials* in May 2008
- Listed as "The most accessed article" in *Advanced Materials* in Feb 2008 – Jan 2009
- Listed as "*The Best of Advanced Materials*" from Jan 2008 through Jun 2009.

12. "Nanoparticle Self-Assembly Directed by Antagonistic Kinase and Phosphatase Activities" Geoffrey von Maltzahn*, Dal-Hee Min*, Yingxin Zhang, **Ji-Ho Park**, Todd J. Harris, Michael Sailor, and Sangeeta N. Bhatia, *Adv. Mater.* 19 (2007) 3579-3582.
*These authors contributed equally.

11. "Nanoparticle Self-Assembly Gated by Logical Proteolytic Triggers" Geoffrey von Maltzahn, Todd J Harris, **Ji-Ho Park**, Alexander J Schmidt, Michael J. Sailor, and Sangeeta N. Bhatia, *J. Am. Chem. Soc.* 129 (2007) 6064-6065.

- Featured in Research Highlights of *Nature Nanotech* (2 (2007) 336) and *NCI/NIH Nanotech News* (May, 2007)

10. "Biomimetic Amplification of Nanoparticle Homing to Tumors" Dmitri Simberg, Tasmia Duza, **Ji Ho Park**, Markus Essler, Jan Pilch, Lianglin Zhang, Austin M. Derfus, Meng Yang, Robert M. Hoffman, Sangeeta Bhatia, Michael Sailor and Erkki Ruoslahti, *Proc. Natl. Acad. Sci. USA.* 104 (2007) 932-936.
    - Featured in *NCI/NIH Nanotech News* (Jan 16, 2007), Research Highlights of *Nature Nanotech* (Jan 26, 2007) and *MIT news (Feb 1, 2007*)

9. "Local Heating of Discrete Droplets Using Magnetic Porous Silicon-Based Photonic Crystals" **Ji-Ho Park**, Austin M. Derfus, Ester Segal, Kenneth S. Vecchio, Sangeeta N. Bhatia, and Michael J. Sailor, *J. Am. Chem. Soc.* 128 (2006) 7938-7946.
    - Featured in *New Scientist (issue 2555, 10 June 2006, page 32*), and Research Highlights of *Lab on a Chip* (6 (2006) 1115).

8. "Bioactivity of Calcium Phosphate Coatings Prepared by Electrodeposition in a Modified Simulated Body Fluid" **Ji-Ho Park**, Doug-Youn Lee, Keun-Taek Oh, Yong-Keun Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *Materials Letters* 60 (2006) 2573–2577.

7. "Nerve Regeneration with the Use of a Poly(L-lactide-co-glycolic acid)-Coated Collagen Tube Filled with Collagen Gel" Doug-Youn Lee, Byung-Ho Choi, **Ji-Ho Park**, Shi-Jiang Zhu, Byung-Young Kim, Jin-Young Huh, Seoung-Ho Lee, Jae-Hyung Jung, and Sung-Hoon Kim, *Journal of Cranio-Maxillofacial Surgery* 34 (2006) 50–56.

6. "Preparation and Characterization of Magnetic Chitosan Particles for Hyperthermic Application" **Ji-Ho Park**, Ki-Hyeong Im, Se-Ho Lee, Dong-Hyun Kim, Doug-Youn Lee, Yong-Keun Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *Journal of Magnetism and Magnetic Materials* 293 (2005) 328-333.

5. "Bioactive Calcium Phosphate Coating Prepared on H_2O_2-Treated Titanium Substrate by Electrodepsotion" **Ji-Ho Park**, Yong-Keun Lee, Kwang-Mahn Kim and Kyoung-Nam Kim, *Surface and Coatings Technology* 195 (2005) 252-257.

4. "Bioactive Cyanoacrylate-Based Filling Material for Bone Defects in Dental Applications" Kyeong-Jun Park, **Ji-Ho Park**, Sang-Bae Lee, Doug-Youn Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *Key Engineering Materials* 284-286 (2005) 933-936.

3. "Organic-Inorganic Hybrids of Hydroxyapatite with Chitosan" K.H. Im, **J.H. Park**, K.M. Kim, K.N. Kim, S.H. Choi, C.K. Kim, and Y.-K. Lee, *Key Engineering Materials* 284-286 (2005) 729-732.

2. "Transformation of Electrodeposited Calcium Phosphate Coatings in Simulated Body Fluid and in Culture Medium" **Ji-Ho Park**, Yong-Keun Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *Key Engineering Materials* 284-286 (2005) 473-476.

1. "Bioactive Calcium Phosphate Coating on Sodium Hydroxide-Pretreated Titanium Substrate by Electrodeposition" **Ji-Ho Park**, Doug-Youn Lee, Keun-Taek Oh, Yong-Keun Lee and Kyoung-Nam Kim, *Journal of the American Ceramic Society*, 87 (2004) 1792-1794.

CONFERENCE PRESENTATIONS

At KAIST

In 2011,

35. "A Systems Approach to Engineering Cancer Nanotechnologies" **Ji-Ho Park,** *2011 Annual Meeting Biomedical Engineering Society*, Hartford, Connecticut, USA (Oct 2011).

34. "A Systems Approach to Engineering Cancer Nanotechnologies" **Ji-Ho Park,** *2011 International Symposium on Nanomedicine & Molecular Imaging*, National Cancer Center, Seoul, Republic of Korea (Aug 2011).

33. "Cancer Therapy with Plasmonic Nanoparticles" **Ji-Ho Park**, *The 5th International Conference on Surface Plasmon Photonics*, Busan, South Korea (May 2011).

32. "Cooperative Nanomaterial System to Sensitize, Target, and Treat Tumors" **Ji-Ho Park**, Geoffrey von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor, *2011 Annual Meeting and Exposition for Society for Biomaterials*, Orlando, Florida, USA (April 2011).

31. "A Systems Approach to Engineering Cancer Nanotechnologies" **Ji-Ho Park,** *2010 1st International Symposium on Chemical Biology and Nanobiotechnology*, Daejeon, Republic of Korea (Nov 2010).

Prior to joining KAIST (2002 ~ 2010),

30. "Magnetic and NMR Properties of Iron Oxide Nanoworms" Yves Gossuin*, Sabrina Disch, Quoc L. Vuong, Pierre Gillis, Raphaël P. Hermann, **Ji-Ho Park**, and Michael J. Sailor, *12th Bi-Annual Conference on Contrast Agents and Multimodal Molecular Imaging*, Mons, Belgium (May 2010).

29. "Gold Nanorods for In Vivo Cancer SERS Detection and Photothermal Therapy" Andrea Centrone*, Geoffrey Von Maltzahn, **Ji-Ho Park**, Michael J. Sailor, Sangeeta N. Bhatia and T. Alan Hatton, *2010 MRS Annual Spring Meeting*, San Francisco, USA (Apr. 2010).

28. "Cooperative Nanomaterials to Image, Sensitize, Target, and Treat Tumors" Michael J. Sailor*, **Ji-Ho Park**, Luo Gu, Geoffrey von Malzahn, Sangeeta N. Bhatia and Erkki Ruoslahti, *2010 MRS Annual Spring Meeting*, San Francisco, USA (Apr. 2010).

27. "Preparation of Magnetic Luminescent Porous Silicon Microparticles and Their Application for Localized Delivery of Molecular Drug Payloads" Luo Gu*, **Ji-Ho Park**, Kim H. Duong, and Michael J. Sailor, *7th International conference on Porous Semiconductors Science and Technology*, Valencia, Spain (Mar. 2010).

26. "Cooperative Nanoparticles for the Photothermally Triggered Delivery of Drugs to Tumors" **Ji-Ho Park***, Geoffrey von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor, *238th ACS National Meeting*, Washington DC, USA (Aug. 2009).

25. "Nanoparticle-to-Nanoparticle Signaling for Amplified Tumor Targeting and Therapy" Geoffrey von Maltzahn*, **Ji-Ho Park**, Erkki Ruoslahti, Michael J. Sailor and Sangeeta N. Bhatia, *237th ACS National Meeting*, Salt Lake City, USA (Mar. 2009).

24. "Biodegradable Luminescent Porous Silicon Nanoparticles for *in vivo* Diagnostic and Therapeutic Applications" **Ji-Ho Park***, Luo Gu, Geoffrey von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia and Michael J. Sailor, *3rd NCI Nanotechnology Alliance Investigators Meeting*, Chicago, USA (Sep. 2008).

23. "Preparation of Paramagnetic Photoluminescent Porous Silicon Particles" Kim Duong*, Luo Gu, Jason Dorvee, **Ji-Ho Park**, and Michael J. Sailor, *6th International conference on Porous Semiconductors Science and Technology*, Mallorca, Spain (Mar. 2008).

22. "Loading of Doxorubicin into Porous Silicon Particles by Covalent Attachment" Elizabeth Wu*, **Ji-Ho Park**, and Michael J. Sailor, *6th International conference on Porous Semiconductors Science and Technology*, Mallorca, Spain (Mar. 2008).

21. "Luminescent Porous Silicon Nanoparticles for Biological Applications" **Ji-Ho Park***, Luo Gu, Kim Duong, and Michael J. Sailor, *6th International conference on Porous Semiconductors Science and Technology*, Mallorca, Spain (Mar. 2008).

20. "Multifunctional Hybrid Nanoparticles for Dual Telemetry and Drug Delivery Applications" **Ji-Ho Park***, Geoffrey A. von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor, *2008 UCSD Jacobs School of Engineering Research Expo*, La Jolla, USA (Feb. 2008).

19. "Magnetic Nanoworms for in vivo Tumor Targeting" **Ji-Ho Park***, Lianglin Zhang, Austin M. Derfus, Geoffrey A. von Maltzahn, Dmitri Simberg, Todd J. Harris, Sangeeta N. Bhatia, Erkki Ruoslahti, and Michael J. Sailor, *2007 MRS Annual Fall Meeting*, Boston, USA (Nov. 2007).

18. "Magnetic Nanoworms for *in vivo* Tumor Targeting" **Ji-Ho Park**, Lianglin Zhang, Geoffrey von Maltzahn, Dmitri Simberg, Todd J. Harris, Sangeeta N. Bhatia, Erkki Ruoslahti, and Michael J. Sailor, *2nd NCI Nanotechnology Alliance Investigators Meeting*, Chapel Hill, USA (Oct. 2007).

17. "Nanoparticle Self-Assembly Gated by Logical Proteolytic Triggers" Geoffrey A. von Maltzahn*, Todd J. Harris, **Ji-Ho Park**, Michael J. Sailor, and Sangeeta N. Bhatia, *2007 BMES Annual Fall Meeting*, Los Angeles, USA (Oct. 2007).

16. "Protease Activated Intracellular Delivery of Sterically Cloaked Nanoparticles" Todd J. Harris*, Geoffrey A. von Maltzahn, Mathew Lord, **Ji-Ho Park**, Michael J. Sailor, and Sangeeta N. Bhatia, *2007 BMES Annual Fall Meeting*, Los Angeles, USA (Oct. 2007).

15. "Smart Dust: Synthesis and Application of Encoded Photonic Crystals by Programmed

Electrochemical Corrosion" Michael J. Sailor*, **Ji-Ho Park**, Shawn O. Meade, Ester Segal, Michael P. Schwartz, Sara D. Alvarez, Manuel Orosco, Emily Anglin, Austin Derfus, Benjamin Migliori, Lin Chao, Sangeeta N. Bhatia, *210th Meeting of The Electrochemical Society*, Cancun, Mexico (Oct. 2006).

14. ""Mother Ships" for Nano-Diagnostics and Nano-Therapeutics" Michael J. Sailor*, Sangeeta N. Bhatia, Sadik Esener, Stephen Howell, Dan Morse, Erkki Ruoslahti, Jennifer Park, **Ji Ho Park**, Ester Segal, Elizabeth Wu, *1st NCI Nanotechnology Alliance Investigators Meeting*, San Diego, USA (Oct. 2006).

13. "Local Heating of Discrete Droplets Using Magnetic Porous Silicon-Based Photonic Crystals" **Ji-Ho Park**, Austin M. Derfus, Ester Segal*, Kenneth S. Vecchio, Sangeeta N. Bhatia, and Michael J. Sailor, *232nd National Meeting of the American Chemical Society*, San Francisco, USA (Sep. 2006).

12. "Local Heating of Discrete Droplets Using Magnetic Porous Silicon-Based Photonic Crystals" **Ji-Ho Park***, Austin M. Derfus, Ester Segal, Kenneth S. Vecchio, Sangeeta N. Bhatia, and Michael J. Sailor, *SBE's 2nd International Conference on Bioengineering and Nanotechnology 2006*, Santa Barbara, USA (Sep. 2006).

11. "Local Heating of Discrete Droplets Using Magnetic Porous Silicon-Based Photonic Crystals" **Ji-Ho Park***, Austin M. Derfus, Ester Segal, Kenneth S. Vecchio, Sangeeta N. Bhatia, and Michael J. Sailor, *The SPIE Optics and Photonics 2006*, San Diego, USA (Aug. 2006).

10. "Multifunctional Magnetic Porous Silicon Microparticles for Droplet-Based Microfluidics" **J. Park***, A.M. Derfus, E. Segal, S.N. Bhatia, and M.J. Sailor, *5th International conference on Porous Semiconductors Science and Technology*, Sitges-Barcelona, Spain (Mar. 2006).

9. "A Lithographic and Plasma Etch Based Method for the Microfabrication of Porous Silicon Photonic Crystal Particles" S. Meade*, **J. Park**, and M.J. Sailor, *5th International conference on Porous Semiconductors Science and Technology*, Sitges-Barcelona, Spain (Mar. 2006).

8. "Organic-inorganic hybrids of hydroxyapatite or calcium phosphate glass with chitosan" K.H. Im*, **J.H. Park**, K.M. Kim, K.N. Kim, S.H. Choi, C.K. Kim, R.Z. LeGeros, and Y.-K. Lee, *17th Annual Meeting of International Society for Ceramics in Medicine (Bioceramics 17)*, New Orleans, USA (Dec. 2004).

7. "Bioactive Cyanoacrylate-based Filling Material for Bone Defects in Dental Applications" Kyeong-Jun Park, **Ji-Ho Park***, Sang-Bae Lee, Doug-Youn Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *17th Annual Meeting of International Society for Ceramics in Medicine (Bioceramics 17)*, New Orleans, USA (Dec. 2004).

6. "Transformation of Electrodeposited Hydroxyapatite Coating in Simulated Body Fluid and in Culture Medium" **Ji-Ho Park***, Doug-Youn Lee, Yong-Keun Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *17th Annual Meeting of International Society for Ceramics in Medicine (Bioceramics 17)*, New Orleans, USA (Dec. 2004).

5. "Preparation and Characterization of Magnetic Chitosan Particles for Hyperthermic

Application" **Ji-Ho Park***, Ki-Hyeong Im, Dong-Hyun Kim, Doug-Youn Lee, Yong-Keun Lee, Kwang-Mahn Kim, and Kyoung-Nam Kim, *2004 5th International Conference on the Scientific and Clinical Applications of Magnetic Carriers*, Paris, France (May 2004).

4. "Properties of PLGA-Coated Chitosan Barrier Membrane for Periodontal Tissue Regeneration" Sang-Bae Lee*, **Ji-Ho Park**, Doug-Youn Lee, Yong-Keun Lee, Sung-Ho Choi, and Kyoung-Nam Kim, *2003 Conference of Yonsei University College of Dentistry*, Seoul, Korea (Nov. 2003).

3. "Super Austenitic, Ferritic and Duplex Stainless Steels for Dental and Biomedical Applications" **J.-H. Park***, K.-T. Oh, Y.-S. Park and K.-N. Kim, *2003 International Conference on Processing & Manufacturing of Advanced Materials*, Madrid, Spain (Jul. 2003).

2. "Properties of Wrought Super Stainless Steels for Manufacturing Skeletal Anchorage System in Orthodontic Clinic" **Ji-Ho Park***, Keun-Taek Oh, Young-Sik Kim, Yong-Soo Park, and Kyoung-Nam Kim, *2003 Spring Meeting of the Corrosion Science Society of Korea*, Seoul, Korea (May 2003).

1. "Electrochemical Properties of Suprastructures Galvanically Coupled to Titanium Implant" **J. H. Park***, K. T. Oh, M. H. Kim, B. G. Choi, and K. N. Kim, *2002 Annual Meeting of the Academy of Dental Materials*, Hawaii, USA (Oct. 2002).

*Oral/Poster presenter

PATENTS

Prior to joining KAIST (2002 ~ 2010),

5. "Nanoworms for In Vivo Tumor Targeting" **Ji-Ho Park**, Lianglin Zhang, Geoffrey A. von Maltzahn, Dmitri Simberg, Sangeeta N. Bhatia, and Michael J. Sailor, U.S. Publication No. US 2010/0254914 A1, Published on Oct 7, 2010.

4. "Luminescent Porous Silicon Nanoparticles, Methods of Making and Using Same" **Ji-Ho Park**, Luo Gu, and Michael J. Sailor, Pending for US Patent, U.S. Application No. 61/154,333, Filed on Feb 20, 2009 and PCT Publication No. WO 2010/096733 A3, Published on Aug 26, 2010.

3. "Method for Preparation of Micellar Hybrid Nanoparticles for Therapeutic and Diagnostic Applications and Compositions Thereof" **Ji-Ho Park**, Geoffrey A. von Maltzahn, Erkki Ruoslahti, Sangeeta N. Bhatia, and Michael J. Sailor, U.S. Application No. 61/075,144, Filed on June 24, 2008 and PCT Publication No. WO 2010/008876 A3, Published on Jan 21, 2010.

2. "Control of Materials and Porous Magnetic Particles", **Ji-Ho Park**, Austin M. Derfus, Ester Segal, Kenneth S. Vecchio, Sangeeta N. Bhatia, and Michael J. Sailor, Pending for US Patent, U.S. Application No. 11/632,914, Filed on Jan 18, 2007 and PCT Publication No. WO 2008/027090 A2, Published on Mar 6, 2008.

1. "Collagen conduit coated with synthetic biodegradable polymer and method for the production thereof", **Ji-Ho Park**, Doug-Youn Lee, Kwang-Mahn Kim, Kyoung-Nam Kim, and Byung-Ho Choi: Korea Patent #10-0700674, Issued on March 21, 2007.

PROFESSIONAL SERVICE

Scientific Advisory Board, Sienna Labs, Inc., USA 2010 - present

AWARDS & HONORS

EWon Assistant Professorship from Korea Advanced Institute of Science and Technology (KAIST) 2010

Graduate Study Abroad Fellowship from Korea Science and Engineering Foundation (KOSEF) 2004

Excellent Poster Presentation Prize in the spring meeting of the Corrosion Science Society of Korea 2003

Best Poster Award in the Conference of Yonsei University College of Dentistry 2003

High Honor Student Award in the second semester of 2000 during the undergraduate period from Yonsei University 2000

INVITED TALKS

"A Systems Approach to Engineering Cancer Nanotechnologies" Graduate School of Nanoscience and Technology, KAIST, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" Department of Biomedical Engineering, Korea University, South Korea 2011

"Tiny Technologies to Fight Cancer" Department of Ophthalmology, Seoul National University Bundang Hospital, South Korea 2011

"Tiny Technologies to Fight Cancer" Department of Neurosurgery, Seoul National University Hospital, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" *2011 International Symposium on Nanomedicine & Molecular Imaging*, National Cancer Center, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" Department of Chemical Engineering, Sogang University, South Korea 2011

"Tiny Technologies in Cancer" Division of Biomedical Science, School of Medicine, Kyungpook National University, South Korea 2011

"Overview of Regulatory System for Dental Devices in USA" *2011 Korea-China-Japan Joint Symposium on Standards and Regulatory System on Dental Devices*, Seoul Plaza Hotel, Seoul, South Korea 2011

"Tiny Technologies in Cancer" Seoul National University Hospital, Seoul, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" *2011 Spring Meeting for The Korean Society for Medical and Biological Engineering*, Keimyung University, Daegu, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" *2011 Spring Conference for the Polymer Society of Korea*, Daejeon, South Korea 2011

"Biofabrication for Drug Delivery" *2011 Biomaterials Academy*, *The Korean Society for Biomaterials,* Sungkyunkwan University, Suwon, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" Department of Advanced Metal and Materials Engineering, Gangneung-Wonju National University, Gangneung, South Korea 2011

"Tiny Technologies in Cancer" Interdisciplinary Program for Bioengineering, Seoul National University, Seoul, South Korea 2011

"Tiny Technologies in Cancer" Biophysics Group, Department of Physics, KAIST, Daejeon, South Korea 2011

"Nanotechnology in Cancer" *The Korean Society for Medical and Biological Engineering Winter Symposium*, Busan, South Korea 2011

"A Systems Approach to Engineering Cancer Nanotechnologies" *1st International Symposium on Chemical Biology and Nanobiotechnology*, KAIST, Daejeon, South Korea 2010

"A Systems Approach to Engineering Cancer Nanotechnologies" Department of Dental Biomaterials and Bioengineering, College of Dentistry, Yonsei University, Seoul, South Korea 2010

"Nanowire-based Single Cell Endoscope" Center for Nanomedicine at UCSB 2010

"A Systems Approach to Engineering Cancer Nanotechnologies" Department of Bio and Brain Engineering, KAIST, Daejeon, South Korea 2010

"Type of Nanomaterials for Targeted Drug Delivery" Introduction to Cancer Nanobiotechnology Course in UCSD extension 2007

"Nanomaterials: *in vivo* Tumor Targeting and Drug Delivery" Seminar in UCSD NanoTUMOR Center 2006