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# SJ CLAIRE HUR, PhD

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Johns Hopkins University

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## Academic Position

|                                       |  |                   |
|---------------------------------------|--|-------------------|
| Johns Hopkins University              | Assistant Professor                            | 07/2017 – present |
| Johns Hopkins University              | Assistant Research Professor                   | 07/2015 – 07/2017 |
| University of California, Los Angeles | Assistant Researcher (PI: Dino Di Carlo Ph.D.) | 04/2016 – 04/2017 |
| Harvard University                    | Rowland Junior Fellow/Principal Investigator   | 09/2011 – 11/2015 |
| University of California, Los Angeles | Postdoctoral Scholar (PI: Dino Di Carlo Ph.D.) | 06/2011 – 08/2011 |

## Education and Training

|                                       |                                      |            |
|---------------------------------------|--------------------------------------|------------|
| University of California, Los Angeles | Mechanical Engineering               | Ph.D. 2011 |
| University of California, Los Angeles | Mechanical Engineering               | M.S. 2007  |
| University of California, Los Angeles | Mechanical and Aerospace Engineering | B.S. 2005  |

## Research Funding

|   |                  |
|---|------------------|
| Sponsored Research Agreement with Vortex Biosciences, Inc.                  | 5/2014 – 11/2015 |
| Rowland Junior Fellowship (5yr funding for independent research activities) | 9/2011 – 11/2015 |

## Awards and Honors

|  |         |
|--|---------|
| Clare Boothe Luce Assistant Professorship, Johns Hopkins University          | 07/2017 |
| Edward K. Rice Outstanding Doctoral Student Award, UCLA HSSEAS               | 11/2011 |
| Rowland Junior Fellowship, Rowland Institute at Harvard University           | 09/2011 |
| UCLA Dean's Special Graduate Fellowship                                      | 09/2005 |
| UCLA MAE Department Chevron Scholarship                                      | 04/2004 |
| Henry Samueli School of Engineering and Applied Science Academic Scholarship | 01/2004 |

## Publications

1. Mengxing Ouyang, Jung Hyun Lee, Winfield Hill, **SJ Claire Hur**, "Microscale Symmetrical Electroporator Array as a Versatile Molecular Delivery System", *Scientific Reports*, 7, 44757; doi:10.1038/srep44757(2017)
2. Dwayne A. L. Vickers, Mengxing Ouyang, Chris Hyunseok Choi, and **SJ Claire Hur**, "Direct Drug Cocktail Analyses using Microscale Vortex-assisted Electroporation", *Analytical Chemistry*, 2014, 86, 10099-10105.
3. Dwayne A. L. Vickers and **SJ Claire Hur**, "Microscale Vortex-assisted Electroporator for Sequential Molecular Delivery", *Journal of Visualized Experiments*, 2014, 90, e51702, doi: 10.3791/51702.
4. Hoyoung Yun and **SJ Claire Hur**, "Sequential Multi-molecule Delivery using Vortex-assisted Electroporation", *Lab on a Chip*, 2013, 13, 2764-2772 (**Selected as Backside Cover Page Article**)
5. **SJ Claire Hur**, Tatiana Z. Brinckerhoff, Christopher M. Walthers, James C. Y. Dunn, and Dino Di Carlo, "Label-free Enrichment of Adrenal Cortical Progenitor Cells using Inertial Microfluidics", *PLoS ONE*, 2012, 7 (10): e46550 (**Featured in BioTechniques**)

6. Keisuke Goda, Ali Ayazi, Daniel R. Gossett, Jagannath Sadasivam, Cejo K. Lonappan, Elodie Sollier, Ali Fard, **SJ Claire Hur**, Jost Adam, Coleman Murray, Cao Wang, Nora Brackbill, Dino Di Carlo, and Bahram Jalali, "High-throughput Single-microparticle Imaging Flow Analyzer", *PNAS*, 2012, 109 (29), 11630-11635
7. **SJ Claire Hur**, Sung-Eun Choi, Sunghoon Kwon and Dino Di Carlo, "Inertial Focusing of Non-spherical Particles", *Applied Physics Letters*, 2011, 99, 044101
8. **SJ Claire Hur**, Albert J. Mach and Dino Di Carlo, "High-throughput Size Based Rare Cell Enrichment using Microscale Vortices", *Biomicrofluidics* 2011, 5, 1, 1-10
9. **SJ Claire Hur**, Nicole K. Henderson-MacLennan, Edward R.B. McCabe and Dino Di Carlo, "Deformability-based Cell Classification and Enrichment using Inertial Microfluidics", *Lab on a Chip*, 2011, 11, 912-920
10. Albert Mach, Jae Kim, Armin Arshi, **SJ. Claire Hur** and Dino Di Carlo, "Automation of Cellular Sample Preparation using a Centrifuge-on-a-chip", *Lab on a chip*, 2011, 11, 2827-2834 **(Selected as Cover Page Article, Highlighted as HOT article in Lab on a Chip Blog)**
11. Youngjae Chun, **SJ Claire Hur**, Colin Kealey, Daniel S. Levi, Dino Di Carlo, KP Mohanchandra, Fernando Vinuela, and Gregory P. Carman, "A Novel Neurovascular Stent Covered in Stretchable Thin Film NiTi Significantly Decreases Flow into a Wide-Neck Aneurysm *In Vitro*", *Smart materials and structures*, 2011, 20, 055021
12. **SJ Claire Hur**, Henry T. K. Tse and Dino Di Carlo, "Sheathless Inertial Cell Ordering for Extreme Throughput Flow Cytometry", *Lab on a Chip*, 2010,10, 274-280 **(Selected as Cover Page Article, Highlighted in Chemical Biology News)**
13. Colin P. Kealey. S.A. Whelan, Youngjae Chun, **SJ Claire Hur**, Alan W. Tulloch, K.P. Mohanchandra, Dino Di Carlo, Daniel S. Levi, Gregory P. Carman, David A. Rigberg, "*In vitro* Hemocompatibility of Thin Film Nitinol in Stenotic Flow Conditions", *Biomaterials*, 2010, 31, 8864-8871
14. Daniel R. Gossett, Westbrook M. Weave, Albert J. Mach, **SJ Claire Hur**, Henry T.K. Tse, Wonhee Lee, Hamed Amini and Dino Di Carlo, "Label-free Cell Separation and Sorting in Microfluidic Systems", *Analytical and Bioanalytical Chemistry* 2010, 397,3249-3267

## Patents

1. **SJ Claire Hur**, "Circulating Tumor Cell Immortalization via Vortex Electroporation Mediated Gene Delivery", (Application No: PCT/US2016/057117)
2. **SJ Claire Hur**, "System and Method for Modulating Physical Stimuli on Living Cells/organisms to Manipulate Biological Processes", *International Patent* (Application No: PCT/US2016/27573)
3. **SJ Claire Hur** and Mengxing Ouyang, "Electrode Array for the Vortex-Assisted Electroporation", *International Patent* (Application No: PCT/US2016/027581)
4. **SJ Claire Hur** and Dwayne A. L. Vickers, "Drug Cocktail Analyses using Microscale Vortex-Assisted Electroporation", *International Patent* (Application No: PCT/US2015/040422)
5. **SJ Claire Hur** and Hoyoung Yun, "Microfluidic Vortex-Assisted Electroporation System and Method", *International Patent* (**Granted**: 3196.030WO1)

6. Dino Di Carlo, **SJ Claire Hur**, and Albert Mach, "Isolation of Larger Target Cells from Heterogeneous Solution using Microfluidic Cancer Cell Trapping Vortex ( $\mu$ CCTV)", US Patent (**Granted**: US9133499 B2) *International Patent WO/2012/037030*
7. Dino Di Carlo, Aydogan Ozcan, Bahram Jalali, **SJ Claire Hur**, and Henry Tse, "Inertial Particle Focusing Flow Cytometry", **Granted** *US Patent 20120063664*
8. Dino Di Carlo and **SJ Claire Hur**, "Systems and Methods for Particle Classification and Sorting", **Granted** *US Patent US9090865 B2*

### **Invited Seminars and Lectures**

|  |            |
|--|------------|
| <b>Portland State University</b> , Mechanical Engineering Seminar                        | 05/15/2015 |
| <b>Stevens Institute of Technology</b> , Mechanical Engineering Seminar                  | 03/24/2015 |
| <b>Johns Hopkins University</b> , Mechanical Engineering Seminar                         | 03/10/2015 |
| <b>Georgia Institute of Technology</b> , Mechanical Engineering Seminar                  | 02/09/2015 |
| <b>4<sup>th</sup> annual netScientific Workshop, Switzerland</b>                         | 12/13/2014 |
| <b>Technische Universitat Dresden, Germany</b> , Biotec Forum                            | 12/08/2014 |
| <b>Stanford University</b> , School of Medicine  | 09/26/2014 |
| <b>University of Southern California</b> , Biomedical Engineering Seminar                | 08/11/2014 |
| <b>Stanford University</b> , Chemical Engineering Seminar                                | 08/05/2014 |
| <b>Harvard Medical School</b> , NSF Workshop on Micro- and Nanotechnologies for Medicine | 07/30/2014 |
| <b>Brown University</b> , Center for Fluid Mechanics                                     | 02/11/2014 |
| <b>MIT</b> , Rising Stars in EECS, An Academic Career Workshop for Women                 | 11/04/2013 |
| <b>MIT</b> , Topics in Applied Microfluidics (Graduate Course 10.S95)                    | 10/22/2013 |
| <b>Harvard Medical School</b> , NSF Workshop on Micro- and Nanotechnologies for Medicine | 08/01/2013 |
| <b>53<sup>rd</sup> New England Workshop on Complex Fluids</b>                            | 11/30/2012 |
| <b>Seoul National University, Republic of Korea</b> , BK21 Seminar                       | 11/06/2012 |
| <b>Northeastern University</b> , Special Chemical Engineering Seminar                    | 10/03/2012 |
| <b>MIT</b> , Khademhosseini research group seminar                                       | 02/17/2012 |
| <b>Harvard University</b> , Squishy Physics & Pizza Seminar Series                       | 02/05/2012 |
| <b>MIT</b> , Micro/Nanofluidic BioMEMS group seminar                                     | 12/06/2011 |

### **Membership in Professional Association**

|   |                |
|---|----------------|
| <i>American Chemical Society</i>                            | 2010 – present |
| <i>American Physical Society</i>                            | 2010 – present |
| <i>Biomedical Engineering Society</i>                       | 2008 – present |
| <i>Korean-American Scientists and Engineers Association</i> | 2003 – present |
| <i>Tau Beta Pi, the Engineering Honor Society</i>           | 2003 – present |
| <i>Society of Rheology</i>                                  | 2009 – 2010    |
| <i>American Society of Mechanical Engineers</i>             | 2003 – 2007    |
| <i>American Institute of Aeronautics and Astronautics</i>   | 2003 – 2005    |
| <i>Society of Women Engineers</i>                           | 2003 – 2005    |