

Rizal F. Hariadi

Wyss Institute, [Harvard University](#)

Center for Life Sciences Boston, 3 Blackfan Circle, Boston, MA 02115, USA

e-mail: Rizal.Hariadi@wyss.harvard.edu – *cellular:* +1-626-376-8638

<http://centrosome.caltech.edu/~hariadi/>

Research Appointments

- 2015– *Wyss Institute Post-doctoral Fellow*
[Wyss Institute, Harvard University](#)
PI: Peng Yin.
- 2011–2015 *Post-doctoral Research Fellow*
Cell and Developmental Biology, [University of Michigan](#)
PI: Sivaraj Sivaramakrishnan.

Education

- 2011 *Ph.D* in Applied Physics, Caltech.
Thesis advisors: Erik Winfree – co-advised by Bernard Yurke.
- 2003 *B.Sc.* in Physics, Washington State University.
- 2003 *B.Sc.* in Biochemistry, Washington State University.

Publications

- in preparation **R. F. Hariadi***, A. Appukutty*, and S. Sivaramakrishnan, “DNA nanotube rings as long-time-scale gliding assay platforms for myosin motor”.
*authors contributed equally.
- under revision **R. F. Hariadi**, E. Winfree, and B. Yurke, “Determining hydrodynamic forces in bursting bubbles using DNA nanotube mechanics”.
- accepted V. Verma, L. Mallik, **R. F. Hariadi**, S. Sivaramakrishnan, G. Skiniotis, A. P. Joglekar, “Maximizing protein hybridization efficiency on multisite DNA origami scaffolds using protein dimerization”, **PLoS One**.
- 2015 **R. F. Hariadi***, R. F. Sommesse*, A. Adhikari, R. Taylor, S. Sutton, J. Spudich, and S. Sivaramakrishnan, “Mechanical coordination in motor ensembles revealed using engineered artificial myosin filaments”, **Nature Nanotechnology**, Vol. 10, 696–700.
*authors contributed equally.
- 2015 **R. F. Hariadi**, R. F. Sommesse, and S. Sivaramakrishnan, “Tuning myosin-driven transport on cellular actin networks”, **eLife** Vol. 4, e05472
- 2015 Y. H. Tee, T. Shemesh, V. Thiagarajan, **R. F. Hariadi**, K. L. Anderson, C. Page, N. Volkmann, D. Hanein, S. Sivaramakrishnan, M. Kozlov, and A. Bershadsky, “Cellular chirality arising from the self-organization of the actin cytoskeleton”, **Nature Cell Biology**, Vol. 4(17), 445–457.
- 2015 **R. F. Hariadi**, B. Yurke, and E. Winfree, “Thermodynamics and kinetics of DNA nanotube polymerization from single-filament measurements”. **Chemical Science**, 2015, Vol. 6, 2252–2267
- 2014 **R. F. Hariadi**, Mario Cale, and Sivaraj Sivaramakrishnan, “Myosin lever arm directs the emergence of collective movement patterns”, **PNAS**, 2014, Vol. 1111, 4091–4096.
- 2013 D. Y. Zhang*, **R. F. Hariadi***, M. T. Choi, and E. Winfree. “Integrating DNA strand displacement circuitry with DNA tile self-assembly”, **Nature Communications**, 2013, Vol. 4, article number: 1965.
* authors contributed equally
- 2012 C. G. Evans, **R. F. Hariadi**, and E. Winfree, “Direct atomic force microscopy observation of DNA tile crystal growth at the single-molecule level”, **JACS**, 2012, Vol. 134, 10485–10492.

- Ph.D. **R. F. Hariadi**, “Non-equilibrium dynamics of DNA nanotubes”.
 Dissertation Thesis advisors: Erik Winfree – co-advised by Bernard Yurke.
- 2010 **R. F. Hariadi** and B. Yurke, “Extensional-flow-induced scission of DNA nanotubes in laminar flow”, **Physical Review E**, 2010, Vol. 82, 046307.
- 2008 P. Yin, **R. F. Hariadi**, S. Sahu, M. T. Choi, S. H. Park, T. H. LaBean, and J. H. Reif, “Programming DNA tube circumference”, **Science**, 2008, Vol. 321, 824–826.
- 2007 K. Fujibayashi, **R. F. Hariadi**, S. H. Park, E. Winfree, and S. Murata, “Toward reliable algorithmic self-assembly of DNA tiles: a fixed-width cellular automaton pattern”, **Nano Letters**, 2008, Vol. 8, 1791–1797.
- 2002 **R. F. Hariadi**, S. C. Langford, and J. T. Dickinson, “Controlling nanometer-scale crystal growth on a model biomaterial with a scanning force microscope”, **Langmuir**, 2002, Vol. 18, Issue 21, 7773–7776.
- 1999 **R. F. Hariadi**, S. C. Langford, and J. T. Dickinson, “Scanning force microscope observations of particle detachment from substrates: The role of water vapor in tribological debonding”, **Journal of Applied Physics**, 1999, Vol. 86, 4885–489.

Patent Applications

- 2015 C. Swanson and **R. F. Hariadi**. “Treatments using aggregation of target particles”, U.S. Provisional patent, filed on February 11th, 2015.
- 2008 P. Yin, **R. F. Hariadi**, S. Sahu, T. H. LaBean, and J. H. Reif. “DNA structures self-assembled from single stranded DNA tiles: Chains, ribbons, and tubes”, U.S. Provisional patent, filed on March 24th, 2008.

Awards

- 2003 *Top 3*, LeRoy Apker Award, American Physics Society (APS).
- 2003 *Honorable mentions*, USA Today All-USA College Academic Team, USA Today.
- 2000 Undergraduate Materials Research Initiative, Material Research Society (MRS).
- 1997 *Silver (overall), gold (experiment) & silver (theory) medals*, Euro-Asia Physics Olympiad, Turkey.

Current collaborators (*alphabetical*)

Alexander Bershadsky (Weizmann Institute of Science & National University of Singapore)
 Elisa Franco (University of California, Riverside)
 Ajit Joglekar (University of Michigan)
 William Hancock (Pennsylvania State University)
 Jongmin Kim (Wyss Institute, Harvard Medical School)
 James Spudich (Stanford)
 Bernard Yurke (Boise State University)

Students supervised (*alphabetical*)

- 2013– Abhinav Appukutty (University of Michigan) – co-first author (in preparation)
- 2012–2014 Mario Cale (University of Michigan) – co-author (PNAS)
- 2014 – Neerja Garikipati (Huron High School, Ann Arbor)
- 2012 – Leopold Green (University of California, Riverside) – co-author (in preparation)
- Fall of 2013 James Song (University of Michigan)
- 2011–2012 Terrence Tigney (University of Michigan)
- Summer 2007 Yudhistira Virgus (then at Institut Teknologi Bandung, now at IBM)
- Summer 2005 Christina Wright (then at Massachusetts Institute of Technology, now at Google)

Outreach

- 2014 *Science Instructor*, “College 101”, University of Michigan.
- 2013 *Webinar speaker*, “How to apply to graduate school in the US”. International Society of Indonesia Scholar.
- 2012 *Conference Chair*, “Bridging International Cooperation between Indonesia & America”, Washington DC.
- 2011 *Invited speaker*, “National Seminar of Science & Technology”, Aceh, Indonesia.
- 2008 *Invited speaker*, “Asian Science Camp”, Bali, Indonesia.

Organizations

- 2009–present *Chief Operating Officer (2011–2013), member (2009–2011 & 2013–present)*, International Society of Indonesian Scholar.
- 2012–present *Member*, American Society For Cell Biology.
- 2014–present *Member*, Biophysical Society.

Entrepreneurship

- 2014–present “ImmunoRodeo”, Ann Arbor.
Co-founder, alongside Carter Swanson

Letter of Recommendations

Peng Yin (Wyss Institute, Harvard Medical School)
Sivaraj Sivaramakrishnan (University of Michigan; University of Minnesota as of 07/2015)
Erik Winfree (California Institute of Technology)
Bernard Yurke (Boise State University)
Paul W. K. Rothemund (California Institute of Technology)