

Education

1985–1988	Ph.D.	The University of Chicago, USA	(Prof. Albert Libchaber)
1983–1985	M.Sc.	The University of Chicago, USA	
1978–1982	A.B.	Harvard College, USA	(Prof. Owen Gingerich)

Employment

2022–	Distinguished SFU Professor		
		Simon Fraser University	
2017–2018	Visiting Professor		
		Physics, Université du Luxembourg	
2010–2011	Visiting Researcher		
		FAS Systems Biology Dept., Harvard University, USA	
2006–2006	Invited Professor		
		Physics, Université de Rennes, France	
2004–	Associate Member		
		Chemistry, Simon Fraser University	
2001– 2001	Invited Researcher (CNRS)		
		Physics, Ecole Normale Supérieure de Lyon, France	
2000–	Professor		
		Physics, Simon Fraser University	
1997– 1997	Invited Researcher		
		Complex Systems (Physics), Weizmann Inst., Israel	
1996– 1996	Invited Researcher		
		Physics, Ecole Normale Supérieure de Lyon, France	
1994–2000	Associate Professor		
		Physics, Simon Fraser University	
1990–1994	Assistant Professor		
		Physics, Simon Fraser University	
1989–1990	Postdoctoral Fellow		(Dr. Patrick Oswald)
		Physics, Ecole Normale Supérieure de Lyon, France	
1988–1989	Postdoctoral Fellow		(Dr. Pawel Pieranski)
		Physics, Université de Paris-Sud (Orsay), France	

Research Areas

Nanotechnology	Nonlinear Physics
Soft Matter	Biophysics
Stochastic Thermodynamics	Control Theory

Awards & Honours

2021	Fellow , Royal Society of Canada
2017	Dean of Graduate Studies Award for Excellence in Supervision , Simon Fraser University
2009	Fellow , American Physical Society
2008	Inaugural Lifetime Referee Award , American Physical Society
1992	Alfred P. Sloan Research Fellow , Sloan Foundation

Book

1. **John Bechhoefer**, *Control Theory for Physicists*, Cambridge University Press, 2021.

Selected Publications (cf. [Google scholar](#))

1. [Tushar K. Saha](#), Joseph N. E. Lucero, [Jannik Ehrich](#), David A. Sivak, and **John Bechhoefer**, “Bayesian Information Engine that Optimally Exploits Noisy Measurements,” *Phys. Rev. Lett.* **129**, 130601 (2022). Editors’ Suggestion. Synopsis in *Physics* by A. Curatolo.
2. [Avinash Kumar](#), Raphaël Chétrite, and **John Bechhoefer**, “Anomalous heating in a colloidal system” *PNAS* **119**, e2118484119 (2022). See story by A. Piccone, *Physics Today* website.
3. [Tushar K. Saha](#), Joseph N. E. Lucero, [Jannik Ehrich](#), David A. Sivak, and **John Bechhoefer**, “Maximizing power and velocity of an information engine” *PNAS* **118**, e2023356118 (2021). See Comment by H. Linke and J. M. R. Parrondo, in *PNAS*.
4. [Karel Proesmans](#), [Jannik Ehrich](#), and **John Bechhoefer**, “Finite-time Landauer principle,” *Phys. Rev. Lett.* **125**, 100602 (2020). Editor’s Choice.
5. [Avinash Kumar](#) and **John Bechhoefer**, “Exponentially faster cooling in a colloidal system,” *Nature* **584**, 64–68 (2020). Journalist articles in *Science News*, *Physics World*; press coverage in numerous outlets.
6. [Avinash Kumar](#) and **John Bechhoefer**, “Nanoscale virtual potentials using optical tweezers,” *Appl. Phys. Lett.* **113**, 183702 (2018). Editor’s Choice in APL; SciLights 30 Oct. 2018 (Four articles / week in Scilights from 20 AIP journals). Included in list of “Most Read APL Scilights” from 2018–2019, May 16, 2020.
7. [Momčilo Gavrilov](#), Raphaël Chétrite, and **John Bechhoefer**, “Direct measurement of nonequilibrium system entropy is consistent with Gibbs-Shannon form,” *PNAS* **114**, 11097–11102 (2017).
8. [Momčilo Gavrilov](#) and **John Bechhoefer**, “Erasure without work in an asymmetric, double-well potential,” *Phys. Rev. Lett.* **117**, 200601 (2016).
9. Karel Proesmans, [Yannik Dreher](#), [Momčilo Gavrilov](#), **John Bechhoefer**, and Christian Van den Broeck, “Brownian duet: A novel tale of thermodynamic efficiency,” *Phys. Rev. X* **6**, 041010 (2016).
10. [Momčilo Gavrilov](#) and **John Bechhoefer**, “Arbitrarily slow, non-quasistatic, isothermal transformations,” *Europhys. Lett.* **114**, 50002 (2016). Editor’s Choice. Featured in *Europhysics News* 47(5–6), 10 (2016). Selected for EPL highlights of 2016.

11. [Yonggun Jun](#), [Momčilo Gavrilov](#), and **John Bechhoefer**, “High-precision test of Landauer’s principle in a feedback trap,” *Phys. Rev. Lett.* **113**, 190601 (2014). Editor’s Suggestion.
12. [Scott Cheng-Hsin Yang](#), Nicholas Rhind, and **John Bechhoefer**, “Modeling genome-wide replication kinetics reveals a mechanism for regulation of replication timing” *Mol. Sys. Biol.* **6**, 404 (2010). “Must Read” selection for Faculty of 1000 Biology.
13. [Michel G. Gauthier](#), John Herrick, and **John Bechhoefer**, “Defects and DNA replication,” *Phys. Rev. Lett.* **104**, 218104 (2010). (4 pp.) Editor’s Suggestion. “Recommended” for Faculty of 1000 Biology.
14. Prasanta K. Patel, Naveen Koomajosyula, Adam Rosebrock, Aaron Bensimon, Janet Leatherwood, **John Bechhoefer**, and Nicholas Rhind, “The Hsk1/Cdc7 replication kinase regulates origin efficiency,” *Mol. Biol. Cell* **19**, 5550–5558 (2008). “Must Read” selection for Faculty of 1000 Biology.
15. [Scott Cheng-Hsin Yang](#) and **John Bechhoefer**, “How *Xenopus laevis* embryos replicate reliably: investigating the random-completion problem,” *Phys. Rev. E* **78**, 041917 (2008). Viewpoint article: Suckjoon Jun and Nick Rhind, “Just-in-time DNA replication,” *Physics* **1**, 32 (2008).
16. **John Bechhoefer** and [Brandon Marshall](#), “How *Xenopus laevis* replicates DNA reliably even though its origins of replication are located and initiated stochastically,” *Phys. Rev. Lett.* **98**, 098105 (4pp.) (2007). *Virtual Journal of Biological Physics Research*, March 1, 2007. “Recommended” for Faculty of 1000 Biology.
17. **John Bechhoefer**, “Feedback for Physicists: A Tutorial Essay on Control,” *Rev. Mod. Phys.* **77**, 783–836 (2005). *Virtual Journal of Biological Physics Research*, Sept. 1, 2005.
18. [Suckjoon Jun](#), [Haiyang Zhang](#) and **John Bechhoefer**, “Nucleation and growth in one dimension, part I: The generalized Kolmogorov-Johnson-Mehl-Avrami model,” *Phys. Rev. E* **71**, 011908 (2005). *Virtual Journal of Biological Physics Research*, February 1, 2005.
19. John Herrick, [Suckjoon Jun](#), **John Bechhoefer**, and Aaron Bensimon, “Kinetic model of DNA replication in eukaryotic organisms,” *J. Mol. Biol.* **320**, 741–750 (2002).
20. [Anand Yethiraj](#) and **John Bechhoefer**, “Two Experimental Tests of the Halperin-Lubensky-Ma Effect at the Nematic--Smectic-A Phase Transition,” *Phys. Rev. Lett.* **84**, 3642–3645 (2000).
21. [Laurent Daudet](#), [Valérie Ego](#), [Sébastien Manneville](#), and **John Bechhoefer**, “Secondary instabilities of surface waves on viscous fluids in the Faraday experiment,” *Europhysics Lett.* **32**, 313–318 (1995).
22. **John Bechhoefer**, [Valérie Ego](#), [Sébastien Manneville](#), and Brad Johnson, “An experimental study of the onset of parametrically pumped surface waves in viscous fluids,” *J. Fluid Mech.* **288**, 325–350 (1995).
23. **John Bechhoefer**, Hartmut Löwen, and Laurette Tuckerman, “A dynamical mechanism for the formation of metastable phases,” *Phys. Rev. Lett.* **66**, 1266–1269 (1991).
24. Adam J. Simon, **John Bechhoefer**, and Albert Libchaber, “Solitary modes and the Eckhaus instability,” *Phys. Rev. Lett.* **61**, 2574–2577 (1988).
25. Patrick Oswald, **John Bechhoefer**, and Albert Libchaber, “Instabilities of a moving nematic-isotropic interface,” *Phys. Rev. Lett.* **58**, 2318–2321 (1987).