

NATALIE ARKUS
29 Oxford St.
Cambridge, Ma., 02138
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EDUCATION

Harvard University (SEAS)	Applied Mathematics (Advisor: Prof. M.P. Brenner)	PhD	2009 (expected)
Harvard University (SEAS)	Applied Mathematics	S.M.	2005
Columbia University (SEAS)	Applied Mathematics	M.S.	2004
Columbia University (Barnard College)	Physics	B.A. (cum laude)	2003
	Mathematical Biology (Double Major)		
	Anthropology (Minor)		

PUBLICATIONS

N. Arkus, V.N. Manoharan, M.P. Brenner. “Directing the Self-Assembly of Sphere Packings.” (In preparation) (2008).

G. Meng, N. Arkus, M.P. Brenner, V.N. Manoharan. “Statistical Distributions of Finite Sphere Packings.” (In preparation) (2008).

N. Arkus, V.N. Manoharan, M.P. Brenner. “Enumerating Finite Sphere Packings.” (Preprint), For submission to *Physical Review Letters* (2008).

N. Arkus and M.P. Brenner. “Extracting Essential Features of Biological Signaling Networks.” (Preprint), For submission to *Proc. Natl. Acad. Sci.* (2008).

N. Arkus. “A Theory of Aging.” (In preparation) (2008).

S.D. Patel, C. Ciatto, C.P. Chen, F. Bahna, M. Rajebhosale, N. Arkus, I. Schieren, T.M. Jessell, B. Honig, S.R. Price, L. Shapiro. “Type II Cadherin Ectodomain Structures: Implications for Classical Cadherin Specificity.” *Cell* **124**, 1255-1268 (2006).

N. Arkus. “A Mathematical Model of Cellular Apoptosis and Senescence Through the Dynamics of Telomere Loss.” *Journal of Theoretical Biology*. **235**, 13-32 (2005).

A. Soulier, N. Arkus, T. Halpin-Healy. “Diverging Tendencies in Multidimensional Secession” *Brazilian Journal of Physics* **33** (3) (2003).

AWARDS & HONORS

American Physical Society Group on Statistical and Nonlinear Physics Student Speaker Award Finalist — 2009 (to take place at the March meeting)

Google Anita Borg Scholarship Finalist — 2007

NSF IGERT Fellowship in Biomechanics (Harvard University) — Sep 2005 - June 2007

Teaching Fellow Award Nomination for Applied Math 105b — Spring 2006

Publication on the following lists of most downloaded publications — Fall 2005
 (N. Arkus. *J Theor Biol.* 2005 Jul 7;**235**(1):13-32.)

The ScienceDirect TOP25 Hottest Articles:

#1 most downloaded article within the journal: Journal of Theoretical Biology.

#4 most downloaded article within the subject area: Agricultural and Biological Sciences.

Grace Potter Rice Fellowship for Promise of Distinction in the Natural Sciences or Mathematics (Barnard College, Columbia University) — April 2004

Cum Laude (Barnard College, Columbia University) — May 2003

Dean's List (Barnard College, Columbia University) — 2002 – 2003

University of Rochester Scholarship (\$40,000) — May 1998

Rensselaer Polytechnic Institute Scholarship (\$40,000) — May 1998

Rensselaer Medal: — May 1997

The Rensselaer Polytechnic Institute Award for Outstanding Achievements in Math and Science

TEACHING EXPERIENCE

Teaching Fellow — (Sep 2006 – Jan 2007, Sep 2008 – Jan 2009)

Applied Math 201: Physical Mathematics I

Harvard University

Division of Engineering and Applied Science

Course Description : Introduction to methods for developing accurate approximate solutions for problems in the physical sciences that cannot be solved exactly. Topics include: complex function theory, approximate solution of integrals, algebraic equations, nonlinear differential equations, and qualitative methods.

Teaching Fellow — (Feb – June 2006, Feb – June 2007)

Applied Math 105b: Ordinary and Partial Differential Equations

Harvard University

Division of Engineering and Applied Science

Course Description : Ordinary differential equations: power series solutions; special functions; eigenfunction expansions. Algebra and calculus of vectors, dyadics, and tensors. Elementary partial differential equations: separation of variables and series solutions; similarity solutions; comparison of elliptic, parabolic and hyperbolic systems. Asymptotics.

Responsibilities as a teaching fellow: Weekly sections and office hours, writing homework and exam solutions, grading.

Volunteer — (Sep – Dec 2006)

Cambridge Rindge and Latin School

Cambridge, MA., 02138

I tutored highschool students weekly in math, physics, biology, chemistry, and french.

AFFILIATIONS

American Physical Society

New York Academy of Sciences

LANGUAGES

English, French, Hebrew