

CURRICULUM VITAE AND LIST OF PUBLICATIONS

• Personal Details

Name: Golan Bel

Date and place of birth: 26/10/1973 Beer Sheva, Israel

Regular military service: 22/03/1992-07/03/1995

Address and telephone number at work: Department of Solar Energy and Environmental Physics, Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boker Campus, Midreshet Ben-Gurion 84990 ISRAEL, phone:+972-8-659-6845

Address and telephone number at home: P.O.Box 111, Midreshet Ben-Gurion 84990 ISRAEL, phone:+972-8-653-2116

• Education

B.Sc. -1998-2001, Bar-Ilan University, Physics

Ph.D. -2001-2005, Bar-Ilan University, Physics

Name of advisor: Prof. Boris Shapiro

Title of thesis: "Topological defects in unconventional superconductors."

• Employment History

2010-Present – Department of Solar Energy and Environmental Physics, Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boker Campus, ISRAEL

2013-Present – Mendel Wasserman career development chair in desert studies

2012-Present – Senior Lecturer

2010-2012 – Lecturer

2008-2010 – Postdoctoral research associate, Center for Nonlinear Studies and CCS-3, Los Alamos National Laboratory, Los Alamos, New Mexico, USA

2005-2008 – Postdoctoral Scholar, Department of Chemistry and Biochemistry and Physics Department, University of California, Santa Barbara, California, USA

2001-2005 – Teaching Assistant, Physics Department, Bar-Ilan University, Ramat Gan, Israel

• Professional Activities

(a) Referee for scientific or professional journal

Physical Review Letters, Physical Review E, Euro Physics Letters, Mathematical Biosciences,

Journal of Economics and International Finance (JEIF), Journal of Chemical Physics, Theoretical Ecology, Journal of Statistical Physics, CATENA, Physical Biology.

(b) Membership in professional/scientific societies

American Physical Society, European Physical Society

(c) Positions in academic administration

2011—Present, Organizer of the department seminars

2013 —Present, Chair of the department teaching committee

• **Awards, Citations, Honors, Fellowships**

(a) Honors, Citation Awards

2004 Bar-Ilan University, the Rector Prize for Excellence in Research.

2003 Bar-Ilan University, Salim and Rachel Benin Scholarship.

2001 Dean's Fellowship for Ph.D. Students.

2001 Wolf Foundation- Scholarship for excellence.

2000 Dean's List –top students in the faculty of exact sciences.

2000 Physics Department - top student of the physics department.

2000 Faculty of Natural Science - Jacobs Award.

(b) Fellowships

2001 – 2005 President Fellowship, Bar-Ilan University, 10k/year, Ph.D. fellowship

• **Scientific Publications**

1. **G. Bel**, B. Rosenstein, B. Shapiro and I. Shapiro, Alternating Para/Diamagnetic Domains in a P-Wave superconductor, Europhys. Lett., **64**, 503 (2003).
2. B. Rosenstein, Shapiro B. Ya, Shapiro I. And **G. Bel**, Vector Vortices in P-Wave Superconductors with arbitrary Kappa Parameter, Phys. Rev. B **67**, 224507 (2003).
3. B. Ya. Shapiro, B. Rosenstein, I. Shapiro and **G. Bel**, Coreless vortex in p-wave superconductor, Physica C **388-389**, 515 (2003).
4. B. Shapiro, **G. Bel**, B. Rosenstein and I. Shapiro, Hot Spot in type II superconductors: Dynamics and Instabilities, Physica C **404**, 335 (2004).
5. **G. Bel** and E. Barkai, Weak ergodicity breaking in the continuous time random walk, Phys. Rev. Lett. **94**, 240602 (2005).
6. **G. Bel** and B. Rosenstein, Dynamics of disordered vortex matter in type-II superconductors, cond-mat/0509.677 (2005).
7. **G. Bel** and B. Rosenstein, Dynamics of the vortex glass transition, AIP conference proceedings **850**, 833 (2006).

8. **G. Bel** and E. Barkai, Random walk to a non-ergodic equilibrium concept, *Phys. Rev. E* **73**, 016125 (2006).
9. **G. Bel** and E. Barkai, Occupation times and ergodicity breaking in biased continuous time random walks, *J. Phys.: Condens. Matter*, **17**, S4287–S4304 (2005).
10. **G. Bel** and E. Barkai, Weak ergodicity breaking with deterministic dynamics, *Europhys. Lett.*, **74**, 15 (2006).
11. **G. Bel**, Y. Zhang and F. L. Brown, Single molecule photon counting statistics for quantum mechanical chromophore dynamics, *J. Phys. Chem. B* **110**, 19066 (2006).
12. **G. Bel**, D. P. Li, B. Rosenstein, V. Vinokur and V. Zuravlev, Dynamics of disordered type-II superconductors: peak effect and the I-V curves, *Physica C* **460-462**, 1213 (2007).
13. **G. Bel** and F. L. H. Brown, Theory for wavelength-resolved photon emission statistics in single-molecule fluorescence spectroscopy, *Phys. Rev. Lett.* **102**, 018303 (2009).
14. A. Zilman, J. Pearson and **G. Bel**, Effects of jamming on transport times in nano-channels, *Phys. Rev. Lett.* **103**, 128103 (2009).
15. **G. Bel** and I. Nemenman, Ergodic and non-ergodic anomalous diffusion in coupled stochastic processes, *New Journal of Physics* **11**, 083009 (2009).
16. B. Munsky, **G. Bel** and I. Nemenman, Specificity and Completion Time Distributions of Biochemical Processes, *J. Chem. Phys.* **131**, 235103 (2009).
17. **G. Bel**, B. Munsky and I. Nemenman, The simplicity of completion time distributions for common complex biochemical processes, *Physical Biology* **6**, 016003 (2010).
18. A. Zilman and **G. Bel**, Crowding effects on transport through nano-channels, *J. of Phys.:Cond. Matt.* **22**, 454130 (2010).
19. **G. Bel**, A. Hagberg and E. Meron, Gradual regime shifts in spatially extended ecosystems, *Theoretical Ecology* **5**, 591-604 (2012).
20. **G. Bel**, Y. Ashkenazy, The relation between the temporal correlations of the wind and the statistics of open ocean currents, *New Journal of Physics* **15**, 053024 (2013).
21. Y. Zarmi, **G. Bel** and C. Aflalo, Theoretical Analysis of Culture Growth in Flat-Plate Bioreactors: The Essential Role of Time Scales, *Handbook of Microalgal Culture: Applied Phycology and Biotechnology*, Edited by A. Richmond and Q. Hu, 2nd edition, Wiley-Blackwell (2013).
22. Y. Zelnik, S. Kinast, H. Yizhaq, **G. Bel** and E. Meron, Regime Shifts in Models of Dryland Vegetation, *Philosophical Transactions of the Royal Society A* **371**, 20120358 (2013).
23. S. Kinast, Y. Zelnik, **G. Bel** and E. Meron, Interplay between Turing mechanisms can increase pattern diversity, *Phys. Rev. Lett.* **112**, 078701(2014).

• **Lectures and Presentations at Meetings and Invited Seminars not followed by Published Proceedings**

(a) Invited plenary lectures at conferences/meetings

2012, Desertification as a Gradual Regime Shift in Spatially Extended Ecosystems, 4th International conference Drylands, Desert and Desertification, Sede Boqer Campus, ISRAEL

2011, Frequency Resolved Photon Counting Statistics in Single Molecule Fluorescence Spectroscopy, Telluride Science Research Center, Telluride, CO, USA

2009, Photon Counting Statistics in Single Molecule Spectroscopy, Single Molecule Dynamics, Telluride Science Research Center, Telluride, CO, USA

2006, Ergodicity Breaking in Continuous Time Random Walk, First passage and extreme value problems in random processes, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK

(b) Presentation of papers at conferences/meetings

(oral) G. Bel and Y. Ashkenazy, 2013, The relation between open ocean current statistics and the temporal correlations of the wind, APS March Meeting, Baltimore, USA.

(oral) G. Bel and Y. Ashkenazy, 2012, The relation between open ocean current statistics and the temporal correlations of the wind, Symposium on Geophysical Fluid Dynamics, Sede Boqer Campus, Israel.

(oral) G. Bel and F. Brown, 2010, Frequency Resolved Single Molecule Spectroscopy, APS March Meeting, Portland, OR, USA

(oral+poster) G. Bel, B. Munsky and I. Nemenman, 2009, Simplicity of Completion Time Distributions, q-bio, Santa Fe, NM, USA

(oral) G. Bel and I. Nemenman, 2009, Anomalous diffusion in coupled stochastic processes, APS March Meeting, Pittsburgh, PA, USA

(oral) G. Bel and E. Barkai, 2007, Ergodicity Breaking in Continuous Time Random Walk, StatPhys 23, Genova, Italy

(poster) G. Bel and E. Barkai, 2005, Weak Ergodicity Breaking, Ageing, Luxemburg

(poster) G. Bel and B. Rosenstein, 2005, Dynamics of disordered vortex matter, LT 24, Orlando, FL, USA

(c) Presentations at informal international seminars and workshops

2009, Bacteria meet physics, Aspen Center for Physics, USA

(d) Seminar presentations at universities and institutions

2014, Okinawa Institute of Science and Technology, Japan – Two invited seminars
2014, Earth and Planetary Sciences – Weizmann Institute of Science, Rehovot, Israel
2013, Physics – The Hebrew University, Israel
2013, Institute for Quantum Optics – Ulm University, Germany
2009, Physics – Technion, Israel
2009, Chemistry – Technion, Israel
2009, Physics – Bar-Ilan University, Israel
2009, Chemistry – Bar-Ilan University, Israel
2009, Physics – Tel-Aviv University, Israel
2009, Physics – Ben-Gurion University, Israel
2009, Physics – Hebrew University, Israel
2009, Physics – Nuclear Research Center Negev, Israel
2009, Physics – Weizmann Institute of Science, Rehovot, Israel
2009, Physics – H. I. T., Holon, Israel
2009, Molecular Physics – Leiden University, Leiden, The Netherlands
2009, Chemical Physics – E. T. H., Zurich, Switzerland
2009, Theoretical Biology – Los Alamos National Laboratory
2009, Physics – Bar-Ilan University, Ramat-Gan, Israel
2009, BIDR, Physics – Ben-Gurion University, Sde Boker, Israel
2006, Physics – Bar-Ilan University, Ramat-Gan, Israel
2005, Chemistry – University of California, Santa Barbara, CA, USA

• Research Grants

2011-2015, European Commission, FP7, Marie Curie CIG, Golan Bel, Stochastic Modeling of Spatially Extended Ecosystems and Ecological and Climate Data Analysis, 4 years – 25k Euro/year – Total 100k Euro
2012, German-Israeli Foundation for Scientific Research and Development, Golan Bel, Frequency-Resolved Single-Molecule Spectroscopy, 1 year – 31k Euro/year – Total 31k Euro
2012-2013, Daniel E. Koshland Fund, Root system development—a new perspective \$20k.

Articles to be published

Submitted:

1. **G. Bel** and Y. Ashkenazy, The role of psammophilous plants in sand dunes dynamics, arXiv:1308.6830 (2013).
2. H. Yizhaq, Oren Hoffman and **G. Bel**, Soil heterogeneity increases vegetation durability (2014).
3. H. Yizhaq, S, Sela, T. Svoray, S. Assouline and **G. Bel**, The effects of heterogeneous soil-water diffusivity of vegetation pattern formation (2014).