Golan Bel February, 2017

CURRICULUM VITAE

• **Personal Details**

Golan Bel
Date and place of birth: October 26, 1973 Beer Sheva, Israel
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 Boqer Campus 8499000 Israel. +972-8-6596845
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• **Education**

B.Sc. - 1998-2001, Bar-Ilan University, Physics Department
Name of advisor: (if applicable)
Title of thesis: (if applicable)

Ph.D - 2001-2006, Bar-Ilan University, Physics Department
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
2013-2014 – 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

• **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 B. Rosenstein, Dynamics of disordered vortex matter in type-II superconductors, cond-mat/0509.677 (2005).

6. **G. Bel** and E. Barkai, Weak ergodicity breaking in the continuous time random walk, *Phys. Rev. Lett.* **94**, 240602 (2005).
7. **G. Bel** and E. Barkai, Random walk to a non-ergodic equilibrium concept, *Phys. Rev. E* **73**, 016125 (2006).
8. **G. Bel** and E. Barkai, Occupation times and ergodicity breaking in biased continuous time random walks, *J. Phys.: Condens. Matter* **17**, S4287–S4304 (2005).
9. **G. Bel** and E. Barkai, Weak ergodicity breaking with deterministic dynamics, *Europhys. Lett.* **74**, 15 (2006).
10. **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).
11. **G. Bel** and B. Rosenstein, Dynamics of the vortex glass transition, *AIP conference proceedings* **850**, 833 (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 florescence 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. 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).
22. 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).
23. S. Kinast, Y. Zelnik, **G.Bel** and E. Meron, Interplay between Turing mechanisms can increase pattern diversity, *Phys. Rev. Lett.* **112**, 078701(2014).

24. H. Yizhaq, S, Sela, T. Svoray, S. Assouline and **G. Bel**, The effects of heterogeneous soil-water diffusivity of vegetation pattern formation, *Water Resources Research* **50**, 5743-5758 (2014).
25. **G. Bel** and Y. Ashkenazy, The role of psammophilous plants in sand dunes dynamics, *J. Geophys. Res. Earth Surf.* **119**, 1636–1650 (2014).
26. T. Turkeltaub, D. Kurtzman, **G. Bel** and O. Dahan, Examination of groundwater recharge with a calibrated/validated flow model of the deep vadose zone, *Journal of Hydrology* **522**, 618-627 (2015).
27. I. Stavi, R. Shem-Tov, Y. Shlomi, **G. Bel** and H. Yizhaq, Recruitment and decay rate of Acacia seedlings in the hyper-arid Arava Valley, Israel, *CATENA* **131**, 14-21 (2015).
28. **G. Bel** and F. L. Brown, Theory of Single Molecule Emission Spectroscopy, *J. Chem. Phys.* **142**, 174104 (2015).
29. E. Strobach and **G. Bel**, Improvement of Global Climate Projections and Reducing their Uncertainties Using a Sequential Learning Algorithm. *Atmos. Chem. Phys.*, **15**, 8631-8641, (2015).
30. Y. Ashkenazy, H. Gildor and **G. Bel**, The effect of stochastic wind on the infinite depth Ekman layer model. *EuroPhys. Lett.***111**, 39001 (2015).
31. Y. Zelnik, E. Meron and **G. Bel**, Gradual Regime Shifts in Fairy Circles. *Proc. Nat. Acad. Sci. USA* **112** (40), 12327 (2015).
32. Y. Zelnik, E. Meron and **G. Bel**, Localized states qualitatively change the response of ecosystems to varying conditions and local disturbances. *Ecological Complexity* **25**, 26-34 (2016).
33. **G. Bel**, C. P. Connaughton, M. Toots and M. M. Bandi, Grid-scale fluctuations and forecast error in wind power, Accepted for publication in the *New Journal of Physics* **18**, 023015 (2016).
34. H. Yizhaq and **G. Bel**, Effects of quenched disorder on critical transitions in pattern-forming systems, *New Journal of Physics* **18**, 023004 (2016).
35. E. Strobach and **G. Bel**, Decadal climate predictions using sequential learning algorithms, *J. of Climate* **29**, 3787-3809 (2016).
36. I. Stavi, **G. Bel**, and E. Zaady, Soil functions and ecosystem services in conventional, conservation, and integrated agricultural systems. A review. *Agronomy for Sustainable Development* **36**(2), 1-12 (2016).
37. E. Strobach and **G. Bel**, The contribution of internal and model variabilities to the uncertainty in CMIP5 decadal climate predictions, In press, *Climate Dynamics* (2017). (arXiv:1508.01609).

• **Research Grants**

2011-2015, European Comission, 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 prespective $20k.

2015-2016, Daniel E. Koshland Fund, Effects of Soil Heterogenity on Nutrients Redistribution $25k.
2015-2016, Reliance Industries Ltd., Physics of Algal Biomass Production $50k. Collaboration with the largest private sector company in India. PI (together with Yair Zarmi and Jeffrey Gordon, BGU).
2016-2019, Ministry of Agriculture, The root of the matter, total budget $1.5M, GB's budget $30k/year for three years.

Articles Submitted for publication:

1. A. Shtein, T. Paz-Kagan, I. Becker-Reshef, G. Bel, A. Karnieli, Assesing and Predicting Forest Phenology from MODIS-derived Vegetation Indices Using Time Series Analysis (2017).
2. E. Strobach and G. Bel, Quantifying the uncertainties in an ensemble of decadal climate predictions (2017).
3. H. Yizhaq, I. Stavi, M. Shachak and G. Bel, Geodiversity increases ecosystem durability to prolonged droughts (2017).