

# Zohar Ringel - Curriculum vitae - Sep 2018

## GENERAL INFORMATION

Name	Zohar Ringel
Address	Eli Cohen 1, Jerusalem, Israel 92347
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Mobile Number	+972-545-504258
Work Number	+972-2-6584550
Date of birth	5.2.1979
Place of birth	Haifa, Israel
Nationality	Israeli
Marital status	Married+2
Military Service	Full military service in the air-force intelligence as an analyst (1/1998 – 1/2001)



## HIGHER EDUCATION

10/2002 – 10/2005	<b>BSc in Physics and Mathematics</b> , Hebrew university of Jerusalem, Israel. Graduated with honors.
10/2005 – 6/2008	<b>MSc in Physics</b> , Weizmann Institute of Science, Israel. <i>Thesis</i> : “Capacitance of open quantum dots, Hartree and Hartree-Fock treatments”. Supervised by: Prof. Joseph Imry and Prof. Ora Entin-Wohlman.
6/2008 – 10/2013	<b>PhD in Physics</b> , Weizmann Institute of Science, Israel. <i>Thesis</i> : “Topological insulators in the presence of disorder, quasiperiodic potentials, and interactions”. Supervised by Prof. Ehud Altman.
11/2011 – 12/2011	<b>Visiting research fellow</b> at the KITP, Santa Barbara, USA.

## EMPLOYMENT

2002-2007	<b>Computer science teacher</b> for various types of classes, including disadvantaged youth in a high school in Lod (Amal-1) and a student with Down’s syndrome.
10/2013 – 4/2015	<b>Post doctoral research position</b> in the Rudolf Peierls Centre for Theoretical Physics, Oxford University. Advisors: Steven H. Simons and John T. Chalker.
5/2015 – 7/2017	<b>A Marie-Curie fellow</b> in the Rudolf Peierls Centre for Theoretical Physics, Oxford University. Also a junior research fellow in Wolfson college.
7/2017 – present	<b>Senior Lecturer</b> position in the Hebrew University of Jerusalem, Racah Institute of Theoretical Physics.

## GRANTS AND FELLOWSHIPS

- [G1] Marie Curie Individual Fellowship [IF] (5.2015–4.2017).
- [G2] A three year Junior Research Fellowship at Wolfson College, Oxford extended to six years (1.2015–12.2020).
- [G3] Alon Fellowship for top young faculty researchers (5.2018–4.2021)
- [G4] A joint Israeli Ministry of Defense grant (“Center of Deep Learning”, 3.2018–).

## SELECTED PUBLICATIONS

- [P1] Z. RINGEL[PI], Y. K. KRAUS[C] AND A. STERN[C]. “Strong side of weak topological insulators”, *Phys. Rev. B* 86, 045102 (2012). Citations: 142
- [P2] Y. K. KRAUS[PI], YOAV LAHINI [PI(EXPERIMENT)], Z. RINGEL[PI], M. VERBIN[PI(EXPERIMENT)] AND O. ZILBERBERG[PI]<sup>†</sup> .. “Topological states and adiabatic pumping in quasicrystals”, *Phys. Rev. Lett.* 109, 106402 (2012) *Editor’s choice*, *Received a viewpoint article in Phys. Rev. Lett.* “Viewpoint: Quasicrystals, Meets topological insulators”, *highlighted in Science and Nature physics [Science 338, 444 (2012), Nat. Phys. 8, 702 (2012)]*. Citations: 360.
- [P3] Y. K. KRAUS[PI], Z. RINGEL[PI] AND O. ZILBERBERG[PI]<sup>†</sup>, “Realizing a 4D Integer Quantum Hall effect in a 2D quasicrystal”, *Phys. Rev. Lett.* 111, 226401 (2013). Citations: 82

<sup>†</sup> student only project during PhD, all authors contributed equally.

- [P4] Z. RINGEL [PI] AND D. L. KOVRIZHIN. “Quantized Gravitational Responses, the Sign Problem, and Quantum Complexity”, *Science Advances* 27 Vol. 3, no. 9, e1701758 (2017) *Popular science versions also appear in Popular Mechanics, New Scientist, and Popular Science magazines.*  
See <https://scienceadvances.altmetric.com/details/26659695/news> for full report of media coverage]. Altmetric score: 698
- [P5] Z. RINGEL [PI] AND RODRIGO DE BEM [C]. “Critical Percolation as a Framework to Analyze the Training of Deep Networks”, ICLR2018 Conference paper (2018)
- [P6] Z. RINGEL [PI] AND M. KOCH-JANUSZ [PI]. “Mutual Information, Neural Networks and the Renormalization Group”, *Nature Physics* (2018) doi:10.1038/s41567-018-0081-4
- [P7] N. AHARON, A. ROTEM, L. P. MCGUINNESS, F. JELEZKO, A. RETZKER, Z. RINGEL [PI] . “ NV center based nano-NMR enhanced by deep learning”. arXiv:1809.02583 (2018), submitted to PRL

## SELECTED TALKS

- [T1] “Classical topological paramagnetism”, Topomechanics conference Aspen (2017) **Invited talk**;
- [T2] “Disordered topological insulators (and a  $Z_2$  chiral-anomaly)”, Euler Symposium on Theoretical and Mathematical Physics, **Invited Talk**, San Petersburg, Russia (2013).
- [T3] “Disordered topological insulators”, APS March Meeting, **Invited talk**, Baltimore (2013);
- [T4] “Deep learning and many body physics”, invited mini-course at the IMPRS Summer School (2018) Prague.
- [T5] “Can you hide from a neural network in a Maze ?” Robotics seminar, Oxford (2017);
- [T6] “Mutual Information, Neural Networks, and RG”, International Workshop on Optimising, Renormalising, Evolving and Quantising Tensor Networks, MPIPDKS Dresden (2018). **Invited talk**