

EDUCATION

Warwick University (GB)
2017
Ph.D. Analytical Science
(Physics)

Tel Aviv University (IL)
2015
M.Sc. Magna Cum Laude,
Physics

Tel Aviv University (IL)
2012
B.Sc.
Summa Cum Laude, Physics
Biology

RESEARCH

**Integrating Calculation and Experiment:
Developing Processes and Tools for NMR
Crystallography of Organic Solids**

Advisor: Prof. S.P.Brown, Dep. Physics

Pioneering work in joining the field of crystal structure prediction with the field of NMR crystallography. The main challenge was matching experimental data to a large dataset of theoretical crystal structures.

Computational methods and tool design and development for visualisation and analysis of ab-initio calculated NMR data.



**Experimental and Theoretical Studies of
Suction Feeding in Larval Fish**

Advisors:

Prof. E.Eisenberg, Dep. Physics

Dr. R.Holzman, Dep. Zoology

Computational Fluid Dynamics modelling of the feeding mechanism in larval fish.

From experimental design to computational modeling.



2012 - Research project

Spatial Localization in Fruit Bats

Advisor: Dr. Y. Yovel, Zoology

Keywords: Echolocation, behavioral experiments, Fourier transform

2011 - 2012 Research project

Biophysics of Cellular Membranes

Advisor: Prof. N. Gov, Chemical Physics,
Weizmann Institute

Keywords: Dynamic modeling, force simulation,
biological membranes

2011 Research project

The Circadian Clock in Larval Zebra Fish

Advisor: Prof. Y. Gothilf, Neurobiology

Keywords: Gene expression, confocal
microscopy, in vivo



2010 - 2011 Research project

**Out-of-Equilibrium Dynamics in a Two Dimensional
Quasicrystal Model**

Advisor: Prof. E.Eisenberg, Physics

Keywords: Symmetry breaking, vortices, dynamic
simulation

2009 - 2011 Research assistant

**Star Formation near the Massive Black Hole in the
Galactic Center**

Advisor: Prof. A. Sternberg, Astrophysics

Keywords: Theoretical astrophysics, data analysis,
Galactic center

FORTRAN

PUBLICATIONS

-  Visualising packing interactions in solid-state NMR: Concepts and applications
M. Zilka, S. Sturniolo, S.P. Brown and J.R. Yates.
The Journal of Chemical Physics 147, 144203
doi: 10.1063/1.4996750 2017
-  Ab-Initio Random Structure Searching of Organic Molecular Solids: Assessment and Validation Against Experimental Data
M. Zilka, D. V. Dudenko, C. E. Hughes, P.A. Williams, S. Sturniolo, T. W. Franks, C. J. Pickard, J.R. Yates, K. D. M. Harris, Kenneth and S.P. Brown.
Physical Chemistry Chemical Physics 19, 25949–25960
doi:10.1039/C7CP04186A 2017
-  Visualization and Processing of Computed Solid-State NMR Parameters: MagresView and MagresPython
S. Sturniolo, T.F. Green, R.M. Hanson, M. Zilka, K. Refson, P. Hodgkinson, S. P. Brown and J. R. Yates
Solid State Nuclear Magnetic Resonance 78, 64-70
doi: 10.1016/j.ssnmr.2016.05.004 2016
-  Experimental and Theoretical Studies of Suction Feeding in Larval Fish
M.Sc. Thesis
<http://primage.tau.ac.il/libraries/theses/exeng-free/2884133.pdf>
-  Automated detection and classification of feeding strikes by larval fish from continuous high-speed digital video: a novel method to extract quantitative data from fastsparse kinematic events
E. Shamur, M. Zilka, T. Hassner, V. China, A. Liberzon, and R. Holzman
Journal of Experimental Biology 219 (11), 1608-1617
doi: 10.1242/jeb.133751 2016
-  Hydrodynamic Constraints of Suction Feeding in Low Reynolds Numbers, and the Critical Period of Larval Fishes
R. Holzman, V. China, S. Yaniv and M. Zilka
Integrative and comparative biology 55 (1), 48-61 doi:10.1093/icb/icv030 2015
-  The Star Formation History of the Milky Way's Nuclear Star Cluster
O. Pfuhl, T. K. Fritz, M. Zilka, H. Maness, F. Eisenhauer, R. Genzel, S. Gillessen, T. Ott, K. Dodds-Eden, and A. Sternberg
The Astrophysical Journal 741 (2), 108
doi:10.1088/0004-637X/741/2/108 2011
-  An Extremely Top-Heavy Initial Mass Function in the Galactic Center Stellar Disks
H. Bartko, F. Martins, S. Trippe, T. K. Fritz, R. Genzel, T. Ott, F. Eisenhauer, S. Gillessen, T. Paumard, T. Alexander, K. DoddsEden, O. Gerhard, Y. Levin, L. Mascetti, S. Nayakshin, H. B. Perets, G. Perrin, O. Pfuhl, M. J. Reid, D. Rouan, M. Zilka, and A. Sternberg
The Astrophysical Journal 708 (1), 834
doi:10.1088/0004-637X/708/1/834 2009

FELLOWSHIPS, AWARDS and EMPLOYMENT

Marie Curie Early-Stage Researcher Fellow
2013-2016



Full-Time Researcher
2013-2016
Dep. Chemistry



WARWICK
THE UNIVERSITY OF WARWICK

Full Scholarship
2012 - 2013



TEL AVIV UNIVERSITY

Young Weizmann Scholars
2011 - 2012



מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

Research Assistant
2011 - 2012
Dep. Astronomy & Astrophysics



TEL AVIV UNIVERSITY

Mandatory Army Service
2006 - 2008
Human Resources

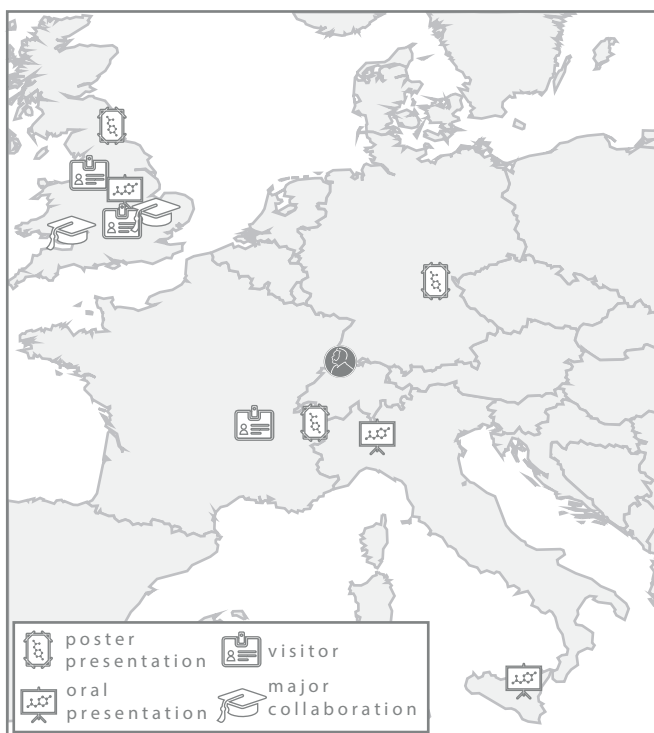


TEACHING EXPERIENCE

Head Instructor
Lab A in Physics
2012 - 2013

Lab Instructor
Lab A in Physics
2012

Teaching Assistant
2011 - 2012
General Physics B for Chemists
Quantum Mechanics 2



-  2014 - 2017 Academic visitor
MML, Dep. Materials, Oxford University (GB)
-  2016 SMARTER5 conference
Bayreuth (DE)
-  2016 Lindau Nobel Laureate Meeting
Lindau (DE)
-  2016 Marie-Curie IDP Network Meeting
Sicily (IT)
-  2015 Alpine NMR Conference
Chamonix (FR)
-  2015 Academic Secondement
Dep. Chemistry, Aix-Marseille Université (FR)
-  2014 SMARTER4 conference
Durham (GB)
-  2014 Industrial Secondement
AstraZenica plc, Macclesfield (GB)
-  2013 Marie-Curie IDP Network Meeting
Milan (IT)
-  Prof. C.J. Pickard
Dep. of Materials Science & Metallurgy
Cambridge University (GB)
-  Prof. K.D.M. Harris
Dep. of Chemistry
Cardiff University (GB)