

Renana Gershoni Poranne

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Professional Experience

Group Leader and Lecturer

Group of Prof. Dr. Peter Chen

ETH Zürich

since 7/2017

Postdoctoral Researcher

Group of Prof. Dr. Peter Chen

ETH Zürich

2015-2017

Education

2010-2015 Ph.D. — Schulich Faculty of Chemistry, Technion, Israel.

Thesis: *Aromatic Systems*

Advisor: Prof. Amnon Stanger

2007-2010 M.Sc. (Summa cum Laude) — Schulich Faculty of Chemistry, Technion, Israel.

Thesis: *Novel Corannulene-Aryl Ethers as Pentagonal Building Blocks for Superstructures*

Advisor: Prof. Ehud Keinan

2004-2007 B.Sc. (Summa cum Laude) — Schulich Faculty of Chemistry, Technion, Israel.

Major: *Molecular Biochemistry*

Grants and Fellowships

2019 Branco Weiss Fellowship – Society in Science

2016-2018 The VATAT Fellowship for Excellent Female Post-Doctoral Scholars

Awards and Honors

2018 Junior Scientist Participation award to attend the '53rd Bürgenstock Conference'

2017 **Poster Award at GRC Physical Organic Chemistry; Poster chosen for talk**

2015 The Weissman and Jacknow Prize for Continued Excellence in Teaching

2014 The Schulich Prize for Excellence in Teaching

2014 Vivian Konigsberg Award for Continued Excellence in Teaching

2013 Selected to be a participant in the 63rd Lindau Nobel Laureates Meeting (Chemistry)

2013 Selected to be a participant in the 1st Global Young Scientists Summit, Singapore

2013 Sandor Szego Award for Excellence in Teaching

2012-2014 **The Schulich Prize for Excellence in Graduate Studies - Ph.D.**

2012 The Schulich Prize for Excellence in Teaching

2010 Sandor Szego Award for Excellence in Teaching

2009 Sandor Szego Award for Excellence in Teaching

2009 The Schulich Prize for Excellence in Teaching

2008-2009 Sharett Foundation Scholarship for Excellence in Music – Singing

2008 Vivian Konigsberg Award for Excellence in Teaching

2007-2009 **The Schulich Prize for Excellence in Graduate Studies - M.Sc.**

- 2007 Schulich Prize for Excellence in Undergraduate Studies
2007 Knesset (Israeli Parliament) Award for Excellent Undergraduate Students
2007-2008 Sharett Foundation Scholarship for Excellence in Music – Singing (*with distinction*)
2004-2007 President of the Technion's Award for Excellence in Studies, 5 semesters (*top 3%*)

Supervision of Students

Ph.D. Theses.....

- current** Alexandra Wahab (ETH Zürich)
Inverse Design of Polycyclic Aromatic Hydrocarbons

M.Sc. Theses.....

- current** Stefan Feusi (ETH Zürich)
On the Origin of Additive Aromaticity: an MO Analysis
- 2016-2017 Eno Paenurk (ETH Zürich)
Theoretical study of metallophilic interaction in d^8 - d^{10} complexes

M.Sc. Semester Projects.....

- 2019 Greta Markert (ETH Zürich)
NICS-XY-Scans of Triplet-State Polycyclic Aromatic Hydrocarbons
- 2019 Stefan Feusi (ETH Zürich)
PREDI-XY: Automated Generation of NICS-XY Scans with Additivity
- 2018 Patrick Finkelstein (ETH Zürich)
Additive Aromaticity: The Heteroatom Case

Teaching Experience – Summarized

At ETH Zurich.....

- 2018-2019 Lecturer – *Organic Chemistry IV: Physical Organic Chemistry*

At Technion.....

- 2009-2015 Senior Teaching Assistant – *Principles of Chemistry A; Principles of Chemistry B; Organic Chemistry Expanded 1; Organic Chemistry Expanded 2; Structure Determination by Physical Methods*
- 2008-2009 Teaching Assistant and Lab Instructor – *Principles of Chemistry A; Principles of Chemistry B*

Oral Presentations at International Conferences

Habilitation Period - Independent Research.....

7. **(Invited Talk)** Patterns in Aromaticity of Triplet State Polycyclic Aromatic Hydrocarbons
International Conference on Excited State Aromaticity and Antiaromaticity — Sigtuna, Sweden **2019**
6. **(Invited Talk)** Predictive Aromaticity and Predicting Aromaticity
Aromaticity 2018 — Riviera Maya, Mexico **2018**
5. The Predictive Power of Aromaticity
International Symposium on Reactive Intermediates and Unusual Molecules (ISRIUM) — M. Verita, Switzerland **2018**
4. Additive Aromaticity in One, Two, and Three Dimensions
IUPAC International Conference on Physical Organic Chemistry (ICPOC) — Faro, Portugal **2018**

Postdoctoral Period.....

3. **(Poster Prize Talk)** Additivity with NICS-XY-Scans
Gordon Research Conference on Physical Organic Chemistry — Holderness, NH, USA 2017

PhD Period.....

2. The NICS-XY-Scan: Identification of Global and Local Ring Currents in Polycyclic Systems
Schulich Graduate Students Symposium — Technion, Haifa, Israel 2014
1. Is There a Correlation Between the Induced Ring Currents and the Aromatic Stabilization Energies of the [N]Phenylenes?
Lise Meitner – Minerva Center for Computational Chemistry Symposium — Hebrew University, Jerusalem, Israel 2012

Selected Poster Presentations

Habilitation Period (Independent Research).....

10. Patterns in Aromaticity of Triplet Polycyclic Aromatic Hydrocarbons
Gordon Research Conference on Physical Organic Chemistry — Holderness, NH, USA 2019
9. PREDI-XY: An Automated System for Generation of NICS-XY Scans with Additivity
Gordon Research Conference on Physical Organic Chemistry — Holderness, NH, USA 2019
8. Additive Aromaticity: The Heteroatom Case
International SRIUM — Monte Verita, Switzerland 2018
7. Additive Aromaticity in One, Two, and Three Dimensions
53rd Bürgenstock Conference — Brunnen, Switzerland 2018
6. Additivity with NICS-XY-Scans — *poster award; chosen for short talk*
Gordon Research Conference on Physical Organic Chemistry — Holderness, NH, USA 2017

Postdoctoral Period.....

5. The C-N⁺ Bonds in Amine and Ammonium Compounds are Charge Shift Bonds
SPP 1807 Fall Meeting — Köln, Germany 2016

PhD Period.....

4. Identification of Local and Global Ring Currents with NICS-based Methodology
15th International Symposium on Novel Aromatic Compounds (ISNA) — Taipei, Taiwan 2013
3. Is There a Correlation Between the Induced Ring Currents and the Aromatic Stabilization Energies of the [N]Phenylenes?
Gordon Research Conference on Physical Organic Chemistry — Holderness, NH, USA 2013
2. An MO-Based Identification of Charge-Shift Bonds
Lise Meitner – Minerva Center for Computational Chemistry Symposium — Hebrew University, Jerusalem, Israel 2012

MSc Period.....

1. Corannulene Ethers via Copper Catalysis
12th European Symposium on Organic Reactivity (ESOR) — Technion, Haifa, Israel 2009

Selected Publications in Peer-Reviewed Journals

Habilitation Period – Independent Research (* indicates corresponding author).....

17. Z. Zhou, R. K. Kawade, Z. Wei, F. Kuriakose, Ö. Üngör, M. Jo, M. Shatruck, R. Gershoni-Poranne,* M. A. Petrukhina,* and I. V. Alabugin*
Negative charge as a lens for concentrating antiaromaticity: using pentagonal "defect" and helicene strain for cyclizations
Accepted for publication, *Angew. Chem.*, November 2019.

16. M. A. Ruiz-Preciado, D. J. Kubicki, A. Hofstetter, A. Ummadisingu, R. Gershoni-Poranne, S. M. Za-
keeruddin, L. Emsley, J. V. Milić, and M. Grätzel
*Supramolecular Modulation of Hybrid Perovskite Solar Cells via Bifunctional Halogen Bonding Revealed by
Two-Dimensional 19F Solid-State NMR Spectroscopy*
Status: Accepted pending major revisions, *J. Am. Chem. Soc.*, September 2019.
15. P. Finkelstein and R. Gershoni-Poranne*
An Additivity Scheme for Aromaticity: The Heteroatom Case
ChemPhysChem **2019**, *20*, 1508-1520.
14. J. V. Milić, C., N. Hellou, F. Isenrich, R. Gershoni-Poranne, D. Neshchadin, S. Egloff, N. Trapp, L.
Ruhmann, C. Boudon, G. Gescheidt, J. Crassous, and F. Diederich
Light-Responsive Pyrazine-Based Systems: Probing Aromatic Diarylethene Photocyclization
Journal of Physical Chemistry C **2018**, *122*, 19100-19109.
13. R. Gershoni-Poranne*, A. P. Rahalkar, and A. Stanger*
*The Predictive Power of Aromaticity: Quantitative Correlation between Aromaticity and Ionization Potentials
and HOMO-LUMO Gaps in Oligomers of Benzene, Pyrrole, Furan, and Thiophene*
Physical Chemistry Chemical Physics **2018**, *20*, 14808-14817.
12. R. Gershoni-Poranne*
Piecing it Together: An Additivity Scheme for Aromaticity using NICS-XY-Scans
Chemistry – A European Journal **2018**, *24*, 4165-4172.

Postdoctoral Period.....

11. S. Künzi, R. Gershoni-Poranne, and P. Chen
Mechanistic Studies on the Nickel-Catalyzed Cyclopropanation with Lithiomethyltrimethylammonium Triflate
Organometallics **2019**, *38*, 1928-1938.
10. P. Chen and R. Gershoni-Poranne
*Response to "Covalent Bonding and Charge Shift Bonds: Comment on "The Carbon–Nitrogen Bonds in Ammo-
nium Compounds Are Charge Shift Bonds""*
Chemistry – A European Journal **2017**, *23*, 18325.
9. E. Paenurk, R. Gershoni-Poranne, and P. Chen
Trends in Metallophilic Bonding in Pd-Zn and Pd-Cu Complexes
Organometallics **2017**, *36*, 4854-4863.
8. R. Gershoni-Poranne and P. Chen
The C-N Bonds in Ammoniums are Charge Shift Bonds
Chemistry – A European Journal **2017**, *23*, 4659-4668

PhD Period.....

7. R. Gershoni-Poranne and A. Stanger
Magnetic Criteria of Aromaticity
Invited Review *Chemical Society Reviews* **2015**, *44*, 6597-6615.
6. M. Schaffroth, R. Gershoni-Poranne, A. Stanger, and U. H. F. Bunz
*Tetraazacenes Containing Four-membered Rings in Different Oxidation States. Are They Aromatic? A Compu-
tational Study*
Journal of Organic Chemistry **2014**, *79*, 11644-11650.
5. R. Gershoni-Poranne and A. Stanger
The NICS-XY-Scan: Identification of Local and Global Ring Currents in Multi-Ring Systems
Chemistry – A European Journal **2014**, *20*, 5673-5688.

4. R. Gershoni-Poranne, C. M. Gibson, P. W. Fowler, and A. Stanger
Concurrence between Current Density, Nucleus-Independent Chemical Shifts, and Aromatic Stabilization Energy: The Case of Isomeric [4]- and [5]Phenylenes
Journal of Organic Chemistry **2013**, *78*, 7544-7553.
3. R. Gershoni-Poranne and A. Stanger
An MO-Based Identification of Charge-Shift Bonds
ChemPhysChem **2012**, *13*, 2377-2381.
2. M. Standera, R. Haefliger, R. Gershoni-Poranne, A. Stanger, G. Jeschke, J. D. van Beek, and A. D. Schlüter
Evidence for Fully Conjugated Double-Stranded Cycles
Chemistry – A European Journal **2011**, *17*, 12163-12174.

MSc Period.....

1. R. Gershoni-Poranne, D. Pappo, E. Solel, and E. Keinan
Corannulene Ethers Via Ullmann Condensation
Organic Letters **2009**, *11*, 5146-5149.

Academic Contributions

- since 2018** Reviewer for: *Nature Chemistry*, *Organic Letters*, *Journal of Organic Chemistry*, *European Journal of Organic Chemistry*, *Tetrahedron*, *Journal of Physical Chemistry*, *Journal of the American Society for Mass Spectrometry*
- 2018** Coauthor of an invited Conference Report on the 2018 ISRIUM Conference for CHIMIA
- 2018** Coauthor of an invited Conference Report on the 53rd Bürgenstock Conference for CHIMIA
- 2018-2019** Vice-Chairperson of the Society for Women in Natural Sciences, ETH Zurich
- 2011-2013** Chairperson of the Organizing Committee, 5th, 6th and 7th Schulich Graduate Symposium
- 2009-2010** Member of the Organizing Committee, 3rd and 4th Schulich Graduate Symposium

Teaching Experience – Expanded

At ETH Zurich.....

Semester	Job	Course
Spring 2019	Lecturer	Organic Chemistry IV: Physical Organic Chemistry
Spring 2018	Lecturer	Organic Chemistry IV: Physical Organic Chemistry

At Technion.....

Semester	Job	Course	Score (of 5)
Winter 2015	Senior Teaching Assistant	Structure Determination Phys. Methods	4.84
Spring 2014	Senior Teaching Assistant	Organic Chemistry 2, Expanded	4.72
Winter 2014	Senior Teaching Assistant	Structure Determination Phys. Methods	4.44
Winter 2014	Senior Teaching Assistant	Organic Chemistry 1, Expanded	4.69
Spring 2013	Senior Teaching Assistant	Organic Chemistry 2, Expanded	4.67
Spring 2013	Senior Teaching Assistant	Structure Determination Phys. Methods	4.64
Winter 2013	Senior Teaching Assistant	Organic Chemistry 1, Expanded	4.58
Spring 2012	Senior Teaching Assistant	Organic Chemistry 2, Expanded	4.80
Spring 2012	Senior Teaching Assistant	Structure Determination Phys. Methods	4.73
Winter 2012	Senior Teaching Assistant	Principles of Chemistry A	4.31
Spring 2011	Senior Teaching Assistant	Organic Chemistry 2, Expanded	4.67
Spring 2010	Teaching Assistant	Organic Chemistry 2, Expanded	4.76
Winter 2010	Senior Teaching Assistant	Structure Determination Phys. Methods	4.94
Winter 2010	Teaching Assistant	Organic Chemistry 1, Expanded	4.67
Spring 2009	Teaching Assistant and Lab Instructor	Principles of Chemistry B	4.27
Winter 2009	Senior Teaching Assistant	Organic Chemistry 1, Expanded	4.83
Winter 2009	Teaching Assistant	Principles of Chemistry A	4.13
Spring 2008	Teaching Assistant and Lab Instructor	Principles of Chemistry B	4.79
Winter 2008	Teaching Assistant and Lab Instructor	Principles of Chemistry A	4.24