Curriculum vitae

• Personal Details

Name: Ronen Bar-Ziv

Date of Birth: 4.8.1974, Israel.

Personal Status: Married + 3 children

Address: Helmonit 4, Omer, Israel

Tel. : +972-8-6439464

Present Employment: Employed by Nuclear Research Centre Negev, as a senior chemist and the Head of Inorganic Chemistry Lab.

Address: N.R.C.N, POB. 9001, Beer-Sheva 84190, Israel, Tel. : 972-8-6569562, Fax: 972-8-6568686 , Email: bronen@post.bgu.ac.il, barzivro@gmail.com

• Academic Education

1999-2002: B.Sc. in Chemistry from Ben-Gurion Univ. of the Negev, Beer-Sheva, Israel

2004-06: M.Sc. in Chemistry from Ben-Gurion Univ. of the Negev, Beer-Sheva, Israel, under the supervision of Prof. Dan Meyerstein on the topic *"Study the Reactions of Alkyl Peroxyl Radicals with Metal Surfaces immersed in Aqueous Solutions"*

2010-14: Ph.D in Chemistry at Ben-Gurion Univ. of the Negev, Beer-Sheva, Israel. Ph.D thesis under the supervision of Prof. Dan Meyerstein on the topic *"Reaction Mechanisms of Radicals with Nanoparticles (NPs) dispersed in Aqueous Solutions"*

2016-17: Sabbatical leave - Visiting Scientist at the Dept. of Chemistry, Ben-Gurion University (collaboration with Prof. Maya Bar-Sadan)

• Employment

2018-prsent: Head of Inorganic Chemistry Lab at the Chemistry department, NRCN

2016-17: On Sabbatical leave - Visiting Scientist at the Dept. of Chemistry, Ben-Gurion University (collaboration with Prof. Maya Bar-Sadan)

2012-16: Senior Chemist at R&D laboratories, NRCN

2004-11: Chemist and head of Analytical Laboratory, NRCN

- **Awards and Honors**

2012- Prize for excellence in doctoral research during the Ph.D studies from Chemistry Dep., Ben-Gurion University

2006- The Katzir scholarship to promising Israeli scientists specializing in fields of natural sciences and engineering.

2001- Certification of excellence for study achievements in B.Sc. studies in 2000. Chemistry Dept, Ben-Gurion University.

- **Academic activities**

a. Peer-Review Referee of Journals:

Chem.Phys.Chem, Advance science, European Journal of inorganic chemistry, Nanotechnology

b. Educational Activities

Research Students towards M.Sc. degree in Chemistry at Ben-Gurion University of the Negev:

1. Mr. Gadi Benjamini (co-supervisor Prof. Dan Meyerstein) – finished 2016
2. Mr. Victor Glebko (co-supervisor Prof. Dan Meyerstein) – finished 2019

- **Research Grants**

2015: Fixation of Low Activity Radioactive Wastes by Coal Fly Ash/Nanoparticles and the study of Radiation Induced Processes at Surfaces (R. Bar-Ziv,T. Zidki, H.Cohen)- from the **Pazi fund** -Israel Atomic Energy Commission

2014: "White City" project, US-IS Joint Research, "Test and Evaluation Plan for Radiological Decontamination Technologies (Ilan Yaar, Rony Hakmon, Ronen Bar-Ziv-NRCN)-from the DOE/CTTSO-the Combating Terrorism Technical Support Office.

- **Research interests**

Topics of expertise:

1. Catalytic processes on nanoparticles
2. Photochemistry and radiolytically-induced processes at the nanoscale and especially reaction mechanisms of radicals, hydrogen atoms and short-lived intermediates in heterogeneous systems (e.g. radical-NPs surfaces interactions)
3. Two-dimensional layered of transition metal dichalcogenide (TMDs) as catalysts and electro-catalysts for energy-related applications (Hydrogen evolution reaction, water splitting, CO_2 reduction)
4. Kinetics and mechanisms of redox (catalytic) reactions with metal surfaces including HER.
5. Radiation chemistry of aqueous solutions using the pulse radiolysis technique and steady state ^{60}Co-γ sources
6. Coordination chemistry of transition metals and the catalytic activity of their complexes

- **List of publications**

(a) Referred articles in scientific journals

1. Kuraganti Vasu, Oren E. Meiron, Andrey N. Enyashin, **Ronen Bar-Ziv**, Maya Bar-Sadan, "The effect of Ru Doping on the properties of $MoSe_2$ Nanoflowers" *Journal of Physical chemistry C*, **2019,** 123,1987-1994.

2. Sunil R. Kadam, Ujjwala V. Kawade, **Ronen Bar-Ziv**, Maya Bar-Sadan, Bharat B. Kaled "Porous MoS_2 framework and its functionality for Electrochemical Hydrogen Evolution Reaction (HER) and Lithium ion Battery", *Nanoscale **2019** (submitted)*

3. **Ronen Bar-Ziv***, Oren E. Meiron, Maya Bar Sadan "Enhancing the catalytic activity of the alkaline hydrogen evolution reaction by tuning the S/Se in the $Mo(S_xSe_{1-x})_2$ catalyst" *Nanoscale* **2018,** 10 (34), 16211-16216.

4. Alina Sermiagin, Dan Meyerstein, **Ronen Bar-Ziv**, Tomer Zidki "The chemical properties of hydrogen atoms adsorbed on M^0-Nanoparticles suspended in aqueous solutions: the case of Ag-NPs and Au-NPs Reduced by BD_4^- " *Angewandte Chemie* **2018**, 130, 16763-16766.

5. **Ronen Bar-Ziv***, Tomer Zidki "The effect of negatively charged metallic nanocatalysts on their reactions with alkyl radicals" *Journal of coordination chemistry* **2018,** 71 (11-13), 1791-1798

6. Pradipta Sankar Maiti, Anal. Kr Ganai, **Ronen Bar-Ziv**, Andrey N. Enyashin, Lothar Houben, Maya Bar Sadan "$Cu_{2-x}S$-MoS_2 Nano-Octahedra at the Atomic Scale: Using a Template To Activate the Basal Plane of MoS_2 for Hydrogen Production" *Chemistry of Materials* **2018,** *30* (14), 4489-4492

7. Oren E. Meiron, Vasu Kuraganti, Idan Hod, **Ronen Bar-Ziv**, Maya Bar-Sadan "Improved catalytic activity of $Mo_{1-x}W_xSe_2$ alloy nanoflowers promotes efficient hydrogen evolution reaction in both acidic and alkali aqueous solutions" *Nanoscale*, **2017**, 9 (37), 13998-14005

8. Gadi Benjamini, **Ronen Bar-Ziv***, Tomer Zidki, E. J. C. Borojovich, Guy Yardeni, Haya Kornweitz, Dan Meyerstein "Pd°- and Au°-nanoparticles catalyze the reduction of

perchlorate by $\cdot C(CH_3)_2OH$ radicals" *European Journal of Inorganic Chemistry* ***2017*** *(30), 3655-3660*

9. Anal Ganai, Pradipta S. Maiti, Lothar Houben, **Ronen Bar-Ziv**, Maya Bar Sadan "Inside-Out: The Role of Buried Interfaces in Hybrid Cu_2ZnSnS_4-Noble Metal Photocatalysts*" J. Phys. Chem. C,* ***2017****, 121 (12), 7062–7068.*

10. Eitan J.C. Borojovich ,**Ronen Bar-Ziv***, Olga Oster-Golberg, Hen Sebbag, Michael Zinigradb, Dan Meyerstein, Tomer Zidki "Halo-organic pollutants: The effect of an electrical bias on their decomposition mechanism on porous iron electrodes" *Applied Catalysis B: Environmental* ***2017****, 210, 255–262*

11. Ilan Yaar, Rony Hakmon, Itzhak Halevy, **Ronen Bar-Ziv**, Noah Vainblat, Yacov Iflach; Tzipora Avraham, Michael D. Kaminski, Terry Stilman, Shannon Serre "Evaluation of Hydrogel Technologies for the Decontamination of ^{137}Cs from Building Material Surfaces" *Journal of Nuclear Engineering and Radiation Science*, **2017**, 3(3), 030909. (doi: 10.1115/1.4036458)

12. Tomer Zidki, **Ronen Bar-Ziv**, Ariela Burg, Yael Albo, Dan Meyerstein, "Radical Reactions at Surfaces", In book: The Optimization of Composition, Structure and Properties of Metals, Oxides, Composites, Nano and Amorphous Materials. Publisher: Russian Academy of Sciences, Editors: E. A. Pastukhov, M. Zinigrad, V. N. Strelnikov, **2016**, 180-185.

13. **Ronen Bar-Ziv***, Tomer Zidki, Israel Zilbermann, Guy Yardeni, Dan Meyerstein "Effect of hydrogen pretreatment of platinum nanoparticles on their reactions with alkyl radicals, implications on their catalytic properties", *ChemCatChem,* **2016**, 8, 2761 –2764

14. Tomer Zidki, Andreas Hänel, **Ronen Bar-Ziv** "Reactions of methyl radicals with silica supported silver nanoparticles in aqueous solutions" *Radiation Physics and Chemistry 124* ***(2016)*** *41–45.*

15. **Ronen Bar-Ziv***, Israel Zilbermann, Michael Shandalov, Vladimir Shevchenko, Dan Meyerstein "Coating platinum nanoparticles with methyl radicals: Effects on properties and catalytic implications ", *Chemistry-a European Journal*, **2015** ,21, 19000. (**Hot Paper)**

16. Tomer Zidki, **Ronen Bar-Ziv**, Uri Green, Haim Cohen, Dan Meisel, Dan Meyerstein "The Effect of Nanoparticulate Silica-Support on the Catalytic Reduction of Water by Gold and Platinum Nanoparticles", *Phys. Chem. Chem. Phys. (PCCP)*, **2014**, 16 (29), 15422.

17. Guy Yardeni, Israel Zilbermann, Eric Maimon, Lioubov Kats, **Ronen Bar-Ziv**, Dan Meyerstein "H/D Kinetic Isotope Effect as a Tool to Elucidate the Reaction Mechanism of Methyl Radicals with Glycine in Aqueous Solutions" *J. Phys. Chem. A.*, **2013**, 117, 13996-13998.

18. **Ronen Bar-Ziv**, Israel Zilbermann, Olga O. Golberg, Tomer Zidki, Guy Yardeni, Haim Cohen, Dan Meyerstein "On the lifetime of the transients (NP)-$(CH_3)_n$ (NP= Ag^0, Au^0, TiO_2 nanoparticles) formed in the reactions between methyl radicals and nanoparticles suspended in aqueous solutions", *Chemistry-a European Journal* **2012,** 18, 4699-4805

19. **Ronen Bar-Ziv**, Israel Zilbermann, Tomer Zidki, Guy Yardeni, Vladimir Shevchenko, Dan Meyerstein "Coating Pt^0 nanoparticles with methyl groups: The reaction between methyl radicals and Pt^0-NPs suspended in aqueous solutions", *Chemistry-a European Journal*, **2012,** 18, 6733-6736.

20. Olga Oster, **Ronen Bar-Ziv**, Guy Yardeni, Israel Zilbermann, Dan Meyerstein "On the reactions of methyl radicals with TiO_2 nanoparticles and powders immersed in aqueous solutions", *Chemistry-a European Journal* **2011,** 17, 9226-9231

21. **Ronen Bar-Ziv**, Israel Zilbermann, Tomer Zidki, Haim Cohen, Dan Meyerstein "Reactions of alkyl peroxyl radicals with metal nano-particles in aqueous solutions", *Journal of Physical Chemistry C* **2009**, *113*, 3281-3286.

(b) Presentations/Publications in Conferences

1. Alina Sermiagin, Dan Meyerstein, Ronen Bar-Ziv, Tomer Zidki "The mechanism of catalytic hydrogen evolution on M^0 Nanoparticles suspended in aqueous solutions", *The 84th Annual Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2019.*
2. Shalaka Varshney, Dan Meyerstein, Ronen Bar-Ziv, Tomer Zidki "H_2 evolution studies and effects of alloyed metal composition on Ag-Pt bimetallic nanoparticles as reduction catalysts", *The 84th Annual Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2019.*

3. Gifty Sara Rolly, Ronen Bar-Ziv, Dan Meyerstein, Tomer Zidki "Synthesizing silica-supported silver nanoparticles at different pHs: Investigating the effect of pH towards dihydrogen yield at high dose-rate using pulse radiolysis", *The 84th Annual Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2019.*
4. Sunil Kadam, Ronen Bar-Ziv, Maya Bar Sadan, Bharat Kale "Hierarchical MoS_2 Sponge with Enhanced Electrochemical Properties for Lithium Storage and Water Splitting", *The Nano.IL.2018 (Nano Israel conference), Jerusalem, Israel, 2018.*
5. Nidhi Shrama, Kuraganti Vasu, Ronen Bar-Ziv, Maya Bar-Sadan "Enhanced Electrochemical Hydrogen Evolution From Ru and Mn-Doped $MoSe_2$ Nanoflower Catalyst", *The Nano.IL.2018 (Nano Israel conference), Jerusalem, Israel, 2018.*
6. Pradipta S. Maiti, Anal K. Ganai, Ronen Bar-Ziv, Andrey N. Enyashin, Lothar Houben, Maya Bar Sadan "$Cu_{2-x}S$-MoS_2 Nano-Octahedra at the Atomic Scale: Using a Template to Activate the Basal Plane of MoS_2 for Hydrogen Production", *The Nano.IL.2018 (Nano Israel conference), Jerusalem, Israel, 2018.*
7. Vasu Kuraganti, Oren E. Meiron, Ronen Bar-Ziv, and Maya Bar-Sadan "Hydrogen Evolution from Ru-doped $MoSe_2$ Nanoflowers Catalyst", *Conference on Advances in Catalysis for Energy and Environment* (CACEE-2018), Mumbai, *January, 2018.*
8. Vasu Kuraganti, Oren E. Meiron, Ronen Bar-Ziv, and Maya Bar-Sadan "Efficient Hydrogen Evolution from Ru-Doped $MoSe_2$ Nanoflowers Catalyst", *The 83th Annual Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2018.*
9. Shalaka Varshney, Ronen Bar-Ziv, Tomer Zidki "Metal Alloying Effect on the Catalytic Activity of Ag-Pt Nanoparticles for 4-Nitrophenol Reduction", *The 83th Annual Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2018.*
10. Krishnamoorthy Sathiyan, Ronen Bar-Ziv , Dan Meyerstein, Tomer Zidk "Effect of Alcohol Sacrificial Agent on the Activity of Au/TiO_2 Nanoparticles Photocatalyst for H_2 Production Reaction and their Mechanistic Study", *The 83th Annual Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2018.*
11. Tomer Zidki, Ronen Bar-Ziv "Study of Radiation Induced Processes at Surfaces in the Context of Radioactive Waste", *The 28th conference of the nuclear societies in Israel, Tel-Aviv, Israel, 2016*
12. Roy N. Lieberman, Xavier Querol, Ronen Bar-Ziv, Haim Cohen "Surface Changes in Coal Fly Ash Occurring Upon Exposure to Aqueous Acidic or Neutral Solutions and the

Correlation to the Fixation Process of Low-Level Radioactive Wastes", *The 28th conference of the nuclear societies in Israel, Tel-Aviv, Israel, 2016*

13. Ronen Bar-Ziv, Israel Zilbermann, Guy Yardeni, Tomer Zidki "Reactions of Methyl Radicals with Pd° Nanoparticles in Aqueous Solutions", *The 13thTihany Symposium on Radiation Chemistry, Balatonalmádi, Hungary, 2015.*
14. Ronen Bar-Ziv, Israel Zilbermann, Guy Yardeni, Tomer Zidki , Dan Meyerstein "Reactions of Methyl Radicals with Pd Nanoparticles in Aqueous Solutions", *The 80th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2015.*
15. Tomer Zidki, Ronen Bar-Ziv "Reactions of Radicals at Surfaces", *The 80th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2015.*
16. Guy Yardeni, Israel Zilbermann, Eric Maimon, Lioubov Kats, Ronen Bar-Ziv, Dan Meyerstein " H/D Kinetic Isotope Effect as a Tool to Elucidate the Reaction Mechanism of Methyl Radicals with Glycine in Aqueous Solutions", *The 80th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2015.*
17. Tomer Zidki, Ronen Bar-Ziv, Haim Cohen, Dan Meisel, Dan Meyerstein "The Effect of Nanoparticulate Silica-Support on the Catalytic Reduction of Water by Gold and Platinum Nanoparticles", *The 79th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2014.*
18. Ofra Paz Tal, Ronen Bar Ziv, Roni Hakmon, Eitan Borojovich, T. Ohaion, Rinat Levi, Ilan Yaar " Study of Cleanup Procedures for Contaminated Areas: Examination of Rubidium as a Surrogate to Cesium" *The 27th conference of the nuclear societies in Israel, Dead Sea, Israel, 2014.*
19. Dan Meyerstein, Tomer Zidki, Ronen Bar-Ziv "Radical reactions with nano-particles suspended in aqueous solutions",*4th International conference on Nanotek&Expo, San Francisco, USA, December 01-03, 2014*
20. Ronen Bar-Ziv, Israel Zilbermann, Tomer Zidki, Guy Yardeni, Dan Meyerstein " The reaction between methyl radicals and Pt^0 nanoparticles suspended in aqueous solutions", *The 28th Miller conference in Radiation Chemistry, Israel, 2013.*
21. Ronen Bar-Ziv, Israel Zilbermann, Tomer Zidki, Guy Yardeni, Dan Meyerstein "Coating Pt^0 nanoparticles with methyl groups: The reaction between methyl radicals and Pt^0-NPs suspended in aqueous solutions", 4th *EuCheMS Chemistry Congress, Prague, Czech Republic, 2012.*

22. Ronen Bar-Ziv, Israel Zilbermann, Tomer Zidki, Guy Yardeni, Dan Meyerstein "On the lifetime of the transients (NP)-CH_3 formed in the reactions of methyl radicals with metal nanoparticles in aqueous solutions", *The 3rd NanoIsrael 2012, Tel Aviv, Israel, March 2012.*
23. Ronen Bar-Ziv, Israel Zilbermann, Tomer Zidki, Guy Yardeni, Haim Cohen, Dan Meyerstein "On the lifetime of (NP)-CH_3 (NP = Ag, Au, TiO_2 Nanoparticles) in Aqueous Solutions", *The 76th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2011.*
24. Ronen Bar-Ziv, Israel Zilbermann, Tomer Zidki, Guy Yardeni, Haim Cohen, Dan Meyerstein "On the lifetime of the transients (NP)-$(CH_3)n$ (NP = Ag, Au nano-particles) formed in the reactions between methyl radicals and nano-particles suspended in aqueous solutions" *First European Inorganic Chemistry Conference (EICC-1), Manchester, UK, 2011.*
25. Tomer Zidki, Ronen Bar-Ziv, Haim Cohen Dan Meyerstein "Reaction of Radicals with Metal and Semiconductor Nanoparticles and Powders Immersed in Aqueous Solutions", *IRAP 2010- The 9th International Symposium on Ionization Radiation and Polymers, Maryland, USA, 2010.*
26. Ronen Bar-Ziv, Israel Zilbermann, Magal Saphier, Haim Cohen, Dan Meyerstein "Reaction of Alkyl Peroxyl Radicals with Metal Powders in Aqueous Solutions. A Radiolytic Study" *The 70th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2005.*
27. Ronen Bar-Ziv, Israel Zilbermann, Magal Saphier ,Haim Cohen, Dan Meyerstein "Reaction of Alkyl Peroxyl Radicals with Metal Powders in Aqueous Solutions. A Radiolytic Study" *The 24th Miller conference in Radiation Chemistry, France, 2005.*
28. Ronen Bar-Ziv, Israel Zilbermann, Tomer Zidki, Haim Cohen, Dan Meyerstein "Reaction of Methyl Peroxyl Radicals with Nanoparticles and Metal Surfaces immersed in Aqueous Solutions", *The 69th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2005.*