Last modified: December, 2018

CURRICULUM VITAE

Name: Dror Shamir
Date & place of birth: June 18, 1972, Beer-Sheva, Israel.
Citizenship: Israeli
Marital status: Married +3.
Affiliation: Chemistry Dept., NRCN, POB.9001, Beer-Sheva, 84190, Israel.
Tel: +972-50-6244137; +972-8-6568727
E-mail: drorshamir@gmail.com
Residence address: Avraam Amir 51, Beer-Sheva, Israel.

1. Academic education

2003-2007 PhD in Chemistry. Ben-Gurion University of the Negev, Israel. Dissertation title: "Nickel(III) complexes with macrocyclic ligands in aqueous solution". Advisors: Prof. Dan Meyerstein and Dr. Israel Zilbermann.

2001-2003 MSc in Chemistry. Ben-Gurion University of the Negev, Israel. Dissertation title: "Nickel(III) complexes with macrocyclic ligands in aqueous solution". Advisors: Prof. Dan Meyerstein and Dr. Israel Zilbermann.

1998-2001 BSc in Chemistry. Ben-Gurion University of the Negev, Israel.

2. employment

Since 7/2007 Nuclear Research Centre Negev.

2.1. M.Sc. and Ph.D. Thesis Students

Since 2017 Student supervisor, Lior Carmel, Pre-PhD student.

Since 2017 Student supervisor, Yael Peled, Pre-PhD student.

2011-2013 Student supervisor, Elad Ittah, MSc thesis.

Since 2006 Student supervisor Technological College -Beer- Sheva, final projects.

3. Grants and awards

2006 – Prize for excellence in research during the Ph.D Studies from TEVA -TECH industry.

2009 - Ministry of National Infrastructure .Tsesarsky, M. Shamir, D. Investigation of microbially mediated precipitation of calcium carbonate in naturally occurring sands**.**

2010- The kazir scholarship to promising Israeli scientists specializing in fields of natural sciences and engineering.

2015 – Pazi Foundation, "Sol-gel matrices as ion and electron exchange columns and as redox catalysts".

4. List of publications

1. Yael Albo, Neelam Neelam, Ariela Burg, **Dror Shamir**, Dan Meyerstein, "Polyoxometalates entrapped in sol-gel matrices as electron exchange columns and catalysts for the reductive de-halogenation of halo-organic acids in water, J. Coordination Chemistry, online (2018)
2. Guy Ben Hamu, **Dror Shamir**, Moshe Zohar, Ariela Burg, " Acceleration of the corrosion of Magnesium by Fenton reagents", J. Coordination Chemistry, (2018), 71
3. **Dror Shamir**, Eric Maimon, Israel Zilbermann, **Ariela Burg**, Yael Albo, Alexander I Shames, Radion Vainer, Eitan J.C. Borojovich, Guy Yardeni, Haya Kornweitz, Dan Meyerstein, Copper(II) catalyses the reduction of perchlorate by both formaldehyde and by dihydrogen in aqueous solutions, J. Coordination Chemistry, online (2018)
4. Chen Barad, Gal Shekel, Michael Shandalov, Hagay Hayun, Giora Kimmel, **Dror Shamir**, Yaniv Gelbstein, Internal Nano Voids in Yttria-Stabilised Zirconia (YSZ) Powder, Materials (2017),10, 1440
5. Michael Meistelman, Jaydeep Adhikary, Ariela Burg, **Dror Shamir**, Gregory Gershinsky, Dan Meyerstein, Ag^0 and Au^0 Nanoparticles Encapsulated in Sol-Gel Matrices as Catalysts in Reductive De-halogenation Reactions. *Chemistry Today – Catalysis and Biocatalysis*, (2017), 35 (5), 16-19.
6. Neelam Singh, Yael Albo, Ariela Burg, **Dror Shamir**, Dan Meyerstein, Bromate reduction by an electron exchange column. *Chemical Engineering Journal*, (2017) 330, 419-422.
7. Ariela Burg, Yaniv Wolfer, **Dror Shamir**, Yael Albo, Haya Kornweitz, Eric Maimon, Dan Meyerstein, Electro-catalytic water oxidation by NiL^{2+}, L=1,4,8,11-tetraaza-cyclotetradecane, in the presence of HCO_3^- or $HPO_4^{2-}/H_2PO_4^-$. *Dalton Transactions*, (2017),46, 10774-10779.
8. Jaydeep Adhikary, Michael Meistelman, Ariela Burg, **Dror Shamir**, Dan Meyerstein**,** Yael Albo, Reductive Dehalogenation of Monobromo- and Tribromoacetic Acid by Sodium Borohydride Catalyzed by Gold Nanoparticles Entrapped in Sol-Gel Matrices Follows Different Pathways. *European Journal of Inorganic Chemistry*, (2017), 11, 1510-1515.
9. Yael Albo Neelam, **Dror Shamir**, Ariela Burg, Subramanian Palaniappan, Gil Goobes, Dan Meyerstein, Polyoxometalates entrapped in sol-gel matrices for reducing electron exchange column applications. *Journal of Coordination Chemistry*, (2016), 69(23), 3449-3457.
10. Yael Albo, Michael Meistelman, Ariela Burg, **Dror Shamir**, Entrapment of Ag^o and Au^o nanoparticles in sol-gel matrices for catalytic applications. In book: *The Optimization of Composition, Structure and Properties of Metals, Oxides, Composites, Nano and Amorphous Materials*. Publisher: Russian Academy of Sciences, Yekatrinburg, Editors: M. Zinigrad and L. Leontiev, Ural Branch Russian Academy of Sciences, (2016), 4-9.
11. Ariela Burg, Ella Fastovesky, **Dror Shamir**, Haya Kornweitz, Dan Meyerstein, The reaction between the peroxide VO(η2-O2)(pyridine-2-carboxylate)·2H2O and FeIIaq is not a Fenton-like reaction, *Journal of Coordination Chemistry* (2016), 69(11-13), 1722-1729.
12. Ariela Burg, **Dror Shamir**, Lina Apelbaum, Yael Albo, Eric Maimon, Dan Meyerstein, Electrocatalytic Oxidation of Amines by Ni-(1,4,8,11-tetraazacyclotetradecane)2+ Entrapped in Sol-Gel Electrodes, *European Journal of Inorganic Chemistry*, (2016), 4, 459-463.
13. Ariela Burg, Yael Albo, **Dror Shamir**, Yair Lavi, Michael Meistelman Neelam, Dan Meyerstein. Transition metal complexes and nano-particles entrapped in sol-gel matrices as electron exchange columns and as redox catalysts. Chapter in "The Optimization of

Composition, Structure and Properties of Metals, Oxides, Composites, Nano and Amorphous Materials", Ed: M. Zinigrad and L. Leontiev, Ural Branch, Russian Academy of Sciences, Yekaterinburg, (2015), 59-70.

14. Ariela Burg, **Dror Shamir**, Inna Shusterman, Haya Kornweitz, Dan Meyerstein, The role of carbonate as a catalyst of Fenton-like reactions in AOP processes, $CO_3^{\cdot -}$ as the active intermediate. *Chemical Communications*, (2014), 50(86), 13096 – 13099.
15. Daniela Gat, Michael Tsesarsky, **Dror Shamir**, Zeev Ronen, Accelerated microbial-induced CaCO3 precipitation in a defined co-culture of ureolytic and non-ureolytic bacteria, Biogeosciences, (2014), 11, (10), 2561-2569.
16. Ludmila Pochtarenko, Israel Zilbermann, **Dror Shamir**, Dan Meyerstein, $Fe(III)_{aq}$ ions do not catalyze the decomposition of peroxomonosulfate, Journal of Coordination Chemistry, (2013), 66 , 24, 4355-4362.
17. Elad Ittah, **Dror Shamir**, Israel Zilbermann, Eric Maimon, Guy Yardeni, Alexander I Shames, Dan Meyerstein, Pyrophosphate as a stabilizer of Ni(III) ions in aqueous solutions, Inorganica Chimica Acta (2013), 405, 72-76.
18. Daniela Gat, **Dror Shamir**, Michael Tsesarsky, Ureolytic Calcium Carbonate Precipitation in the Presence of Non-Ureolytic Competing Bacteria, Geo-Frontiers (2011), 3966-3974.
19. **Dror Shamir,** Israel Zilbermann, Eric Maimon; Shames, Alexander I Shames, Haim Cohen, Dan Meyerstein, Anions as stabilizing ligands for Ni(III)(cyclam) in aqueous solutions, Inorganica Chimica Acta (2010), 363(12), 2819-2823.
20. Inna Popivker, Israel Zilbermann, Eric Maimon, **Dror Shamir,** Naomi Meyerstein, Dan Meyerstein, On the reaction mechanism of MoS_4^{2-} with nitric oxide, Inorganic Chemistry Communications (2010), 13(5), 589-592.
21. **Dror Shamir,** Israel Zilbermann, Eric Maimon, Gary Gellerman, Haim Cohen, Dan Meyerstein, Reductive Nitrosation of Peptides Ligated to High-Valent Metal Cations, European Journal of Inorganic Chemistry (2007), (32), 5029-5031.
22. **Dror Shamir,** Israel Zilbermann, Eric Maimon, Haim Cohen, Dan Meyerstein, Reductive nitrosation of methyl amine ligated to a nickel(III) complex, Inorganic Chemistry Communications (2007), 10(1), 57-60.
23. Dalia Mazor, Liya Greenberg, **Dror Shamir,** Dan Meyerstein, Naomi Meyerstein, Antioxidant properties of Bucillamine: Possible mode of action, Biochemical and Biophysical Research Communications (2006), 349(3), 1171-1175.
24. Rony A. Illos, **Dror Shamir,** W. L. J. Shimon, Israel Zilbermann, Shmuel Bittner, Dansyl-carbazoloquinone; a chemical and electrochemical fluorescent switch, Tetrahedron Letters (2006), 47(31), 5543-5546.
25. **Dror Shamir,** Israel Zilbermann, Eric Maimon, Shames, Alexander I Shames, Haim Cohen, Dan Meyerstein, Pyrophosphate and ATP as Stabilizing Ligands for High-Valent Nickel Complexes, European Journal of Inorganic Chemistry (2006), (3), 523-525.
26. **Dror Shamir,** Israel Zilbermann, Eric Maimon, Dan Meyerstein, Oxidation of CH_3NH_2 and $(CH_3)_2NH$ by Ni-III(cyclam)$(H_2O)_2^{3+}$ in aqueous solutions, European Journal of Inorganic Chemistry (2004), (20), 4002-4005.

6. Invited Lectures

1. "The Role of Carbonate in Heterogeneous Electro-Catalytic Water Oxidation by Ni(II) Complexes", Advanced Oxidation Technologies for Treatment of Water, Air and Soil, Florida, USA, November13-16, 2017.
2. "The role of carbonate and phosphate in the electro-catalytic water oxidation by $Ni^{II}L^{2+}$", IICHE, Tel-Aviv, Israel, June 26, 2017.
3. "The role of carbonate and phosphate in the electro-catalytic water oxidation by $Ni^{II}L^{2+}$", Advanced Oxidation Technologies for Treatment of Water, Air and Soil, 13- Atlanta, USA, November 17, 2016.
4. "Entrapment of the complex Cu(2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane) in sol-gel electrodes for electrocatalysis", IICHE, Tel-Aviv, Israel, June 21, 2016.
5. "The reaction between the peroxide $VO(\eta^2\text{-}O_2)(\text{pyridine-2-carboxylate})\cdot 2H_2O$ and Fe^{II}_{aq} is not a Fenton-like reaction", ECIRM, Krakau, Poland, June 23-25, 2016.
6. "Entrapment of the complex Cu(2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane) in sol-gel electrodes for electrocatalysis", EMN Mesoporous Materials, Prague, Czech Republic, June 13-17, 2016.
7. "Electrocatalysis by entrapped Cu^{II}(2,5,8,11-tetramethyl-2,5,8,11-tetraaza-dodecane)$^{2+}$ in sol-gel electrodes", EICC3, Wroclaw, Poland, 28/6-1/7, 2015.
8. " Redox reactions of Cerium Complexes in aqueous Solutions", 26th Miller conference on radiation Chemistry, Keszthely, Hungary 28.8-2.9. 2009.
9. "Reductive Nitrosation of Peptides Ligated to High-Valent Metal Cations", ICBIC 13, Vienna, Austria, July 2007.
10. "Reductive nitrosation of methyl amine ligated to a nickel(III) complex", Israel society for Oxygen and free radical research" Beer-Sheva, Israel, 2006.
11. "Reductive nitrosation of amine and Peptides ligated to Ni(III)/Cu(III)/Fe(III) Ions" International conference on coordination chemistry, South Africa, 2006.
12. "Pyrophosphate and ATP as Stabilizing Ligands for High-Valent Nickel Complexes", FIGIPAS 8th, Athens, Greece, 2005.
13. "Reductive nitrosation of methyl amine ligated to a nickel(III) complex", 230th ACS National meeting, Washington, DC, United State, 2005.

7. Papers and abstracts – proceedings of conferences

1. Michael Meistelman, Yael Albo, Ariela Burg, **Dror Shamir**, Dan Meyerstein, "Reductive dehalogenation of haloacetic acids catalyzed by Ag^0-NPs incorporated in sol-gel matrices." The 81st Meeting of the Israel Chemical Society, Tel Aviv, Israel, February 2016.
2. Yael Albo Neelam, Ariela Burg, **Dror Shamir**, Gil Goobes, Dan Meyerstein, "Polyoxometalates entrapped in sol-gel matrices for reducing electron exchange column applications." The 81st Meeting of the Israel Chemical Society, Tel Aviv, Israel, February 2016.
3. Ariela Burg, Elias Inbar, Lina Apelbaum, **Dror Shamir**, Yael Albo, Dan Meyerstein, "Electrocatalysis by entrapped Cu^{II}(2,5,8,11-tetramethyl-2,5,8,11-tetraaza-dodecane)$^{2+}$ in sol-gel electrodes." ISRAELECTROCHEMISTRY, Beer-Sheva, Israel, October 2015.

4. Ariela Burg, Elias Inbar, Lina Apelbaum, **Dror Shamir**, Dan Meyerstein, "Electrocatalysis by entrapped Cu^{II}(2,5,8,11-tetramethyl-2,5,8,11-tetraaza-dodecane)$^{2+}$ in sol-gel electrodes." EICC3, Wroclaw, Poland, June-July 2015.
5. Ariela Burg, Yaniv Wolfer, Lina Apelbaum, **Dror Shamir**, Eric Maimon, Dan Meyerstein, "Ni(II)Cyclam in a sol-gel matrix as an electro-catalyst." ISOS XVII, The 17th International Symposium on Silicon Chemistry, Berlin, Germany, August 2014.
6. Ariela Burg, Yaniv Wolfer, Lina Apelbaum, **Dror Shamir**, Eric Maimon, Dan Meyerstein, "Ni(II)Cyclam in a sol-gel matrix as an electro-catalyst." The 28th Miller Conference on Radiation Chemistry, Dead Sea, Israel, March 2013.
7. Ariela Burg, Yaniv Wolfer, Lina Apelbaum, **Dror Shamir**, Eric Maimon, Dan Meyerstein, "Ni(II)Cyclam in a sol-gel matrix as an electro-catalyst." The 78th Annual Meeting of the Israel Chemical Society, Tel-Aviv, Israel, February 2013.
8. D. Gat, M. Tsesarsky, **D. Shamir**. Z. Ronen " Ureolytic $CaCO_3$ in the presence of Non Ureolitic Bacteria. The 22nd V. M. Goldschmidt Conference, Montreal Canada, 2013
9. **D. Shamir**. E. Ittah. L Zilbermam, E. Maimon, G. Yardeni, A. I. Shames, D. Meyerstein, "Pyrophosphate as a Stabilizer of Ni(III) Ions in Aqueous Solutions", presented at I4thAsian Chemical Congress, 2011, Bangkok, Thailand and at the 77th meeting of the Israel Chemical Society, Israel 2012
10. G. Yardeni, I. Zilbermann, E. Maimon, **D. Shamir**, L. kats, A.I. Shames, H. Cohen. D. Meyerstein. "ATP as a stabilizer of high valent Lanthanide and Transition metal ions", 2nd EUCHEMS- European Chemistry Congress, Turin, Italy, 2008.
11. **D. Shamir**. E. Ittah. L Zilbermam, E. Maimon, G. Yardeni, A. I. Shames, D. Meyerstein, "Pyrophosphate as a Stabilizer of Ni(III) Ions in Aqueous Solutions" 38th ICCC- International Conference on Coordination Chemistry, Jerusalem, Israel, 2008.
12. G. Yardeni, I. Zilbermann, E. Maimon, **D. Shamir**, L. kats, A.I. Shames, H. Cohen. D. Meyerstein. "ATP as a stabilizer of high valent Lanthanide and Transition metal ions", 38th ICCC- International Conference on Coordination Chemistry, Jerusalem, Israel, 2008.
13. **D. Shamir**, I. Zilbermann , E. Maimon, and D. Meyerstein "Reductive nitrosylation of methyl amine ligated to a nickel (III) complex" Gordon Conference on Reaction Mechanisms in Inorganic Chemistry" Ventura, CA,USA,2007.
14. Y. Sorek, **D. Shamir**. I. Zilbermann . E. Maimon, and D. Meyerstein "NO_2 as an intermediate in the oxidation of NO_2^- by Ni^{III}(cyclam)$(H_2O)_2^{3+}$", The 72't Meeting of the Israel Chemical Society, Tel Aviv, lsrael, 2007.
15. **D. Shamir**, I. Zilbermann , E. Maimon, and D. Meyerstein "Reductive nitrosylation of methyl amine ligated to a nickel (III) complex" The 72't Meeting of the Israel Chemical Society, Tel Aviv, lsrael, 2006.
16. **D. Shamir**, I. Zilbermann, E. Maimon, H. Cohen. D. Meyerstein, The Effect of NO on the Kinetics and Mechanisms of Oxidation of Amines and Peptides by Central Ni(III) Ions, 230-th ACS Nat. Meeting, Washington DC, USA,2005.
17. **D.Shamir,** I. Zilbermann. E. Maimon, H. Cohen, D. Meyerstein, ATP as a stabilizing ligand for high valent nickel complexes, ICBIC-12, Ann Arbor, USA, 2005.

18. **D. Shamir**, I. Zilbermann, E. Maimon, H. Cohen. D. Meyerstein. The Effect of NO on the Kinetics and Mechanisms of Oxidation of Amines and Peptides by Central Ni(III) ions.ICBIC-12, Ann Arbor, USA, 2005
19. **D. Shamir**, I. Zilbermann , E. Maimon: H. Cohen and D. Meyerstein "Pyrophosphate and ATP as a stabilizing ligands for high valent nickel complexes" The 7-th Meeting of the Israel Chemical Society, Tel Aviv, Israel, 2005
20. **D. Shamir**, l. Zllbermann , E. Maimon; H. Cohen and D. Meyerstein "Pyrophosphate and ATP as a stabilizing ligands for high valent nickel complexes" ICCC 36, Merida, Mexico 2004.
21. **D. Shamir**, I. Zilbermaun . E. Maimon; H. Cohen and D. Meyerstein "Biological ligands like ATP as a stabilizing ligands for high valent nickel complexes" The 69th Meeting of the Israel Chemical Society, Israel, 2004.
22. **D. Shamir**, I. Zilbermann , E. Maimon; and D. Meyerstein "Novel axial binding anions as stabilizing species for Ni(III) in aqueous solutions, An electrochemical and spectroscopic study" The 68th Meeting of the Israel Chemical Society, lsrael, 2003
23. **D. Shamir**. L Zilbermann , E. Maimon; and D. Meyerstein, Oxidation of Linear Amines by Ni(III)(1,4.8,11-tetraazacyclotetradecane)$(H_2O)^{3+}$ in Aqueous Solutions. XXXV-th Int. Conf. Coord. Chem., Heidelberg, 2002
24. **D. Shamir**. I. Zilbermann . E. Maimon; and D. Meyerstein," Oxidation of CH_3NH_2 and $(CH_3)_2NH$ by Ni-III(cyclam)$(H_2O)_2^{3+}$ in aqueous solutions" 67th Meeting of the Israel Chemical Society, Israel, 2002.