Ariela Burg January 2019

CURRICULUM VITAE

1. Personal Details:

Permanent Home Address: Misheul Susia 8/39, Beer-Sheva, Israel

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2. Higher Education

Period of study	**Name of Institution and Department**	**Degree**	**Year Approval of Degree**
1999 - 2004	Ben-Gurion University of the Negev, Department of Chemistry	PhD in Chemistry	2004
1997 - 1998	Ben-Gurion University of the Negev, Department of Chemistry	MSc in Chemistry	1998
1993 - 1997	Ben-Gurion University of the Negev, Department of Chemistry	BSc in Chemistry **Graduated Cum Laude**	1997

3. Academic Ranks and Tenure in Institutes of Higher Education

Dates	**Name of Institution and Department**	**Rank/Position**
Since 2012	Tenured Sami Shamoon College of Engineering, Chemical Engineering Department	Senior Lecturer
Since 2009	Sami Shamoon College of Engineering, Chemical Engineering Department	Senior Lecturer
2004 - 2009	Sami Shamoon College of Engineering, Chemical Engineering Department	Lecturer
2007 - 2017	Ben-Gurion University of the Negev, Department of Chemistry	External Lecturer
2000-2004	Sami Shamoon College of Engineering, Chemical Engineering Department	Teaching assistant
1999 - 2004	Ben-Gurion University of the Negev, Department of Chemistry	Teaching assistant

4. Offices in Academic Administration

Dates	Name of Institution and Department	Position
Since September 2017**	Sami Shamoon College of Engineering, Chemical Engineering Department	**Head of the Chemical Engineering Department**
Since September 2017**	Sami Shamoon College of Engineering, Chemical Engineering Department	Head of the Chemical Engineering Department Pedagogy Committee
Since September 2017**	Sami Shamoon College of Engineering, Chemical Engineering Department	Head of the Chemical Engineering Department Contents Committee
Since September 2017**	Sami Shamoon College of Engineering, Chemical Engineering Department	Member of Chemical Engineering Department Curriculum Committee
Since September 2017**	Sami Shamoon College of Engineering, Chemical Engineering Department	Responsible for 3rd and 4th year students
Since 2017**	Sami Shamoon College of Engineering, Chemical Engineering Department	Member of SCE Green Committee
Since 2007 - 2017	Sami Shamoon College of Engineering, Chemical Engineering Department	Member of the Chemical Engineering Department Contents Committee

5. Scholarly Positions and Activities outside the Institution

Dates		Position
2018**	Journal of Coordination Chemistry	Referee (of the article "Iron catalyzed demethylation of acetic acid")
2018**	Environmental Science & Technology	Referee (of the article "Surface Facet of $CuFeO_2$ Nanocatalyst: A Key Parameter for H_2O_2 Activation in Fenton-like Reaction and Organic Pollutant Degradation")
2017**	Advanced Oxidation Technologies for the Treatment of Water, Air and Soil conference	Member of the international organizing committee
2016**	Advanced Oxidation Technologies for the Treatment of Water, Air and Soil conference	Member of the international organizing committee
2016**	Oxidative Medicine and Cellular	Referee
2015**	RSC Advances	Referee
2015**	Redox Report	Referee
Since 2009*	The Royal Society of Chemistry	Membership

* Since 2009 Senior Lecturer.

** Since 2012 Tenured

6. Participation in Scholarly Conferences

a. Active participation

Date	Name of Conference	Place of Conference	Subject	Role
February 2018**	The 83st Meeting of the Israel Chemical Society	Tel-Aviv, Israel.		Chair, PLENARY 3
February 2016**	The 81st Meeting of the Israel Chemical Society	Tel-Aviv, Israel.	Reductive dehalogenation of haloacetic acids catalyzed by Ag^0-NPs incorporated in sol-gel matrices.	
February 2016**	The 81st Meeting of the Israel Chemical Society	Tel-Aviv, Israel.	Polyoxometalates entrapped in sol-gel matrices for reducing electron exchange column applications.	
October 2015**	ISRAELECTRO CHEMISTRY 2015	Beer Sheva, Israel.	Electrocatalysis by entrapped Cu^{II}(2,5,8,11-tetramethyl-2,5,8,11-tetraaza-dodecane)$^{2+}$ in sol-gel electrodes.	
October 2015**	The 10th International Conference on Magnesium Alloys and their Applications	JeJu, South Korea.	The synergetic effect of the Fenton reaction to corrosion of magnesium implants.	
July 2015**	EICC3	Wroclaw, Poland.	Electrocatalysis by entrapped Cu^{II}(2,5,8,11-tetramethyl-2,5,8,11-tetraaza-dodecane)$^{2+}$ in sol-gel electrodes.	
August 2014**	ISOS XVII, 2014, The 17th International Symposium on Silicon Chemistry	Berlin, Germany.	Ni(II)Cyclam in a sol-gel matrix as an electro-catalyst.	
March 2013**	The 28th Miller Conference on Radiation Chemistry	Dead Sea, Israel.	Ni(II)Cyclam in a sol-gel matrix as an electro-catalyst.	
February 2013**	The 78th Annual Meeting of the Israel Chemical Society	Tel-Aviv, Israel.	Ni(II)Cyclam in a sol-gel matrix as an electro-catalyst.	
September 2012*	ICCC 40	Valencia, Spain.	The effect of bicarbonate on the Fenton-like reaction of Co^{2+}(aq) with H_2O_2.	

Date	Name of Conference	Place of Conference	Subject	Role
July 2011*	The 9th World Congress on Neurohypophysial Hormones – WCNH	Northeastern University, Boston, MA, USA.	Labor augmentation with oxytocin decreases glutathione level.	
January 2011*	The 76th Annual Meeting of the Israel Chemical Society	Tel-Aviv, Israel.	The effect of bicarbonate on the Fenton-like reaction of Co^{2+}(aq) with H_2O_2.	
September 2010*	3rd EuCheMS Chemistry Congress	Nürnberg, Germany.	The effect of 2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane as a ligand on the catalytic properties of Cu(I).	
January 2009	The 74th Annual Meeting of the Israel Chemical Society	Tel Aviv, Israel.	The effect of 2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane as a ligand on the catalytic properties of Cu(I).	
July 2005	8th FIGIPAS Meeting in Inorganic Chemistry	Athens, Greece.		Chairman
July 2005	8th FIGIPAS Meeting in Inorganic Chemistry	Athens, Greece.	Ligand effects on the chemical activity of copper(I) complexes.	
January 2003	The 68th Meeting of the Israel Chemical Society	Tel Aviv, Israel.	Mechanism of reduction of NO_2^- by Cu^+_{aq}, A comparison with CuNIR enzyme.	
July 2002	35th International Conference on Coordination Chemistry	Heidelberg, Germany.	Kinetics of the reactions of copper(I) with nickel(III)cyclam$(SO_4)_2^-$ and with $(NH_3)_5$Co(III)Cl^{2+}.	
July 2000	34th International Conference on Coordination Chemistry	Edinburgh, Scotland.	The reaction mechanism of nitrosothiols with copper(I).	
1999	Conference of Bioinorganic Chemistry	Florence, Italy.	The reaction mechanism of nitrosothiols with Cu^+_{aq}.	
September 1998	33th International Conference on Coordination Chemistry	Florence, Italy.	Mechanistic insight into the copper catalyzed decomposition of nitrosothiols.	

Date	Name of Conference	Place of Conference	Subject	Role
February 1998	The 63rd Meeting of the Israel Chemical Society	Tel Aviv, Israel.	Mechanistic insight into the copper catalyzed decomposition of nitrosothiols.	

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b. Organization of Conferences or Sessions

Date	Name of Conference	Place of Conference	Subject	Role
November 2017**	Advanced Oxidation Technologies for Treatment of Water, Air and Soil conference	Florida, Tampa, USA.		Member of the international organizing committee
November 2016**	Advanced Oxidation Technologies for Treatment of Water, Air and Soil conference	Atlanta, GA, USA.		Member of the international organizing committee

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7. Lectures

Date	Name of Conference	Place of Conference	Subject
June 2018**	Seminar in Zuckerberg Institute for Water Research, Sde Boqer Campus	Sde Boqer Campus, BGU.	Efficient and green sol-gel processes for environmental applications.
November 2017** Invited lecture	Advanced Oxidation Technologies for Treatment of Water	Tampa, USA.	The role of carbonate in heterogeneous catalytic water oxidation by Ni(II) comple
June 2017**	IICHE	Tel-Aviv, Israel.	The role of carbonate and phosphate in the electro-catalytic water oxidation by $Ni^{II}L^{2+}$
November 2016** Invited lecture	Advanced Oxidation Technologies for Treatment of Water	Atlanta, USA.	The role of carbonate and phosphate in the electro-catalytic water oxidation by $Ni^{II}L^{2+}$.
June 2016**	ECIRM 2016	Krakow, Poland.	The reaction between the peroxide $VO(\eta^2\text{-}O_2)$(pyridine-2-

Date	Name of Conference	Place of Conference	Subject
			carboxylate)·$2H_2O$ and Fe^{II}_{aq} is not a Fenton-like reaction.
June 2016**	IICHE	Tel-Aviv, Israel.	Entrapment of the complex Cu(2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane) in sol-gel electrodes for electrocatalysis.
June 2016**	EMN Mesoporous Materials	Prague, Czech Republic.	Entrapment of the complex Cu(2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane) in sol-gel electrodes for electrocatalysis.
June 2015**	EICC3	Wroclaw, Poland.	Entrapment of the complex Cu(2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane) in sol-gel electrodes for electrocatalysis.
July 2013**	EICC	Jerusalem, Israel.	Does $Co(H_2O)_6^{2+}$ react with H_2O_2 via a Fenton-like reaction?
July 2008	ICCC38	Jerusalem, Israel.	Is it always correct to use the Marcus cross relation for calculations of electron self-exchange rates?
July 2005	8th FIGIPAS Meeting in Inorganic Chemistry	Athens, Greece.	Ligand effects on the chemical activity of copper(I) complexes.

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8. Research Grants

a. Grants Awarded

Role in Research	Co-Researchers	Topic	Funded by/ Amount	Year
PI**	Dr. Yael Albo Dr. Dror Shamir	Sol-gel matrices as ion and electron exchange columns and as redox catalysts.	Pazi Foundation $280000	2015 - 2018
PI*		The effect of Ligands on Cu^{I} catalyzed processes.	The Royal Society of Chemistry grant £2000	2009

b. Internal Grants Awarded

Role in Research	Co-Researchers	Topic	Funded by/ Amount	Year
PI**		Entrapment of M°-nano-particles, and complexes in sol-gel matrices for practical applications.	SCE Foundation 50000NIS	2015 - 2016

PI**		Entrapment of M°-nano-particles, and complexes in sol-gel matrices for practical applications.	SCE Foundation 50000NIS	2014 - 2015
PI**		Entrapment of M°-nano-particles, and complexes in sol-gel matrices for practical applications.	SCE Foundation 50000NIS	2013 - 2014
PI**		Heterogeneous catalytic processes in sol gel matrix	SCE Foundation 55000NIS	2012 - 2013
PI*		Heterogeneous catalytic processes in sol gel matrix.	SCE Foundation 55000NIS	2011 - 2012
PI*		The effect of 2,5,8,11-tetramethyl- 2,5,8,11 tetrazadodecane as a ligand for monovalent copper on reaction proceeding via the Meerwein mechanism.	SCE Foundation 55000NIS	2010 – 2011
PI*		The effect of 2,5,8,11-tetramethyl- 2,5,8,11 tetrazadodecane as a ligand for monovalent copper on reaction proceeding via the Meerwein mechanism.	SCE Foundation 35000NIS	2009 - 2010

c.

c. Submission of Research Proposals–Not Funded

Role in Research	**Co-Researchers**	**Topic**	**Funded by/Amount**	**Year**
PI**	Dr. Yael Albo Dr. Dror Shamir	Efficient and green sol-gel processes for environmental applications.	Pazi Foundation 350000NIS	2019-2022
PI**		Enhanced energy harvesting with DPN-fabricated meta-surfaces.	RSC Foundation480000NIS	2019
PI**	Dr. Moshe Zohar Prof. Victor Kagalovsky	Enhanced energy harvesting with DPN-fabricated meta-surfaces.	Ministry of Science and technology, Meta-surfaces 480000NIS	2019-2021

PI**	Dr. Yael Albo Prof. Das Debasis	Development of novel sol-gel based methods for the recycling of heavy metal ions and radioactive waste.	ISF-URG Foundation	2018
Participant**	Dr. Zeev Fradkin, Dr. Marcos Roitman, Dr. Moshe Zohar	Solar cell efficiency improvement using DIP pen nanolithography.	Ministry of Energy R&D Policy	2017
Participant**	Prof. Dorith Tavor Dr. Gali Nave Dr. Oshra Saphier	Development of an introductory chemistry MOOC (Massive open online course.	CHE/PBC# & Israel Digital Headquarters	2017
PI**	Dr. Guy Ben-Hamu Dr. Raphael Gonen	The effect of Ce/Ca magnesium alloys degradation in parallel to Fenton reaction on living cells.	The National Foundation for Scientific and Engineering Applications	2015
Participant**	Dr. Guy Ben-Hamu	The synergetic effect of Fenton reaction on corrosion of magnesium implants.	The National Foundation for Scientific and Engineering Applications	2015
PI*	Dr. Yael Albo Dr. Dror Shamir	Sol-gel matrices as ion and electron exchange columns and as redox catalysts.	Pazi Foundation	2012
PI*	Siegfried Schindler	Heterogeneous catalytic processes in sol-gel matrix.	GIF	2011

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9. Teaching

a. Courses Taught in Recent Years

Year	Name of Course	Type of Course	Degree	Number of Students
Since 2017**	Information Retrieval	Lecture	First Degree	40
Since 2016**	Physical Chemistry Laboratory	Laboratory#	First Degree	35

Since 2011*	Introduction to Nano Technology	Lecture and Laboratory#	First Degree	20
Since 2004	Physical Chemistry	Lecture	First Degree	40 - 50
Since 2004	Analytical Chemistry	Lecture	First Degree	40 - 50
Since 2004	Introduction to Chemistry	Lecture	First Degree	40 - 50
Since 2004	Analytical Chemistry Laboratory	Laboratory#	First Degree	40 - 50

laboratory supervisor

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b. Supervision of Graduate Students

Name of Student	**Title of Thesis**	**Degree**	**Date of Completion/ in progress**	**Students Achievements**	
Shira Biton**	Heterogeneous Fenton reaction by Perovskite as a catalyst.	MSc	In Progress		----------
Ido Sabag**	Maximizing the interaction between solar panels and optical fibers to generate alternative energy.	MSc	In Progress		With Dr. Nir Trabelsi
Yael Peled**	Development of novel sol-gel based methods for the recycling of heavy metal ions and radioactive waste.	Pre-PhD student	In Progress		With Prof. Dan Meyerstein
Lior Carmel**	Treatment organic waste by nano titania and tungsten oxide.	Pre-PhD student	In Progress		With Prof. Dan Meyerstein
Yaniv Wolfer**	Fixation complexes of Transition metal in sol-gel matrix for using in variety catalytic processes.	PhD	2018	One article	Prof. Dan Meyerstein
Shiran Aharon**	Entrapment of Hoveyda–Grubbs catalysts in sol-gel matrices, study of their activities in heterogeneous systems.	MSc	In progress		With Prof. Dan Meyerstein & Dr. Eyal Tzur

Kira Bresler**	Fenton like reaction in heterogeneous system.	MSc	In Progress		With Prof. Dan Meyerstein
Ella Fastovski	The mechanism of the oxidation reaction of Fe^{II} ions by the $VO(O_2)$ pyridine-2-carboxylate$\cdot 2H_2O$ complex.	MSc	2017	One article	With Prof. Dan Meyerstein
Inbar Elias**	Entrapment of the complex Cu(2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane) in sol-gel electrodes for electrocatalysis.	MSc	2015		With Prof. Dan Meyerstein
Inna Shusterman*	The Effect of Bicarbonate on the Reaction of Co^{2+}(aq) with H_2O_2.	MSc	2012	Two articles	With Prof. Dan Meyerstein
Yaniv Wolfer*	The effect of 2,5,8,11-tetramethyl-2,5,8,11-tetraazadodecane on Meerwein reaction.	MSc	2010	One article	With Prof. Dan Meyerstein

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c. Cooperation:

As an integral part of my research, I collaborate with a variety of researchers from academic institutes in Israel and abroad: Department of Electrical and Electronics Engineering, SCE; Department of Mechanical Engineering. SCE; Chemistry Department, Ben-Gurion University of the Negev, Israel; Electrooptical Engineering, Ben-Gurion University of the Negev, Israel; Nuclear Research Centre Negev, Israel; Ariel University, Israel; University of Calcutta, India.

10. PUBLICATIONS

a. Peer reviewed papers

1. ** Guy Ben Hamu, Dror Shamir, Moshe Zohar, Ariela Burg (corresponding author), Acceleration of the corrosion reaction of magnesium by Fenton reagents. Accepted for publication to *Journal of Coordination Chemistry* (2018), IF 1.703, Q3.
2. ** Neelam Singh, Dan Meyerstein, Ariela Burg, Dror Shamir, Yael Albo, Polyoxometalates entrapped in sol-gel matrices as electron exchange columns and catalysts for the reductive de-halogenation of halo-organic acids in water. Accepted for publication in *Journal of Coordination Chemistry*, (2018). IF 1.703, Q3.
3. **Jaydeep Adhikary, Dan Meyersteina, Vered Marks, Michael Meistelman, Gregory Gershinsky, Ariela Burg, Dror Shamir, Haya Kornweitz, Yael Albo, Sol-gel entrapped Au^0 - and Ag^0 -nanoparticles catalyze reductive dehalogenation of halo-organic compounds by BH_4^-. *Applied Catalysis B: Environmental*, (2018), 239, 450-469. IF 11.698, Q1.
4. ** Dror Shamir, Dan Meyerstein, Israel Zilbermann, Ariela Burg, Yael Albo, Alexander I Shames, Radion Vainer, Eitan J.C. Borojovich, Guy Yardeni, Haya Kornweitz, Eric Maimon, Copper(II) catalyses the reduction of perchlorate by both formaldehyde and by dihydrogen in aqueous solutions. Accepted for publication to *Journal of Coordination Chemistry* (2018), IF 1.703, Q3.
5. ** Guy Ben Hamu, Ariela Burg (corresponding author), The Role of Fenton reaction in biodegradable magnesium and its alloys. *Publisher NACE International* (2017). IF 2.908, Q1.
6. ** Michael Meistelman, Jaydeep Adhikary, Ariela Burg, Dror Shamir, Gregory Gershinsky, Dan Meyerstein, Yael Albo, 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. IF 0.538, Q3, cited by 2.
7. ** Neelam Singh, Yael Albo, Ariela Burg, Dror Shamir, Dan Meyerstein, Bromate reduction by an electron exchange column. *Chemical Engineering Journal* (2017), 330, 419-422. IF 6.216, Q1, cited by 3.
8. ** Ariela Burg (corresponding author), Yaniv Wolfer, Dror Shamir, Yael Albo, Haya Kornweitz, Eric Maimon, Dan Meyerstein, The role of carbonate in electro-catalytic water oxidation by using Ni (1,4,8,11-tetraazacyclotetradecane)$^{2+}$. *Dalton Transactions* (2017), 46, 10774-10779. IF 4.029, Q1, cited by 2.
9. ** 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), 2017(11), 1510-1515. IF 2.444, Q1, cited by 2.
10. ** 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. IF 1.79, Q2, cited by 1.
11. ** Ariela Burg (corresponding author), Ella Fastovesky, Dror Shamir, Haya Kornweitz, Dan Meyerstein, The reaction between the peroxide $VO(\eta 2\text{-}O_2)$(pyridine-2-carboxylate)$\cdot 2H_2O$ and

Fe^{II}_{aq} is not a Fenton-like reaction. *Journal of Coordination Chemistry* (2016), 69(11-13), 1722-1729. IF 1.79, Q2, cited by 2.

12. ** Ariela Burg (corresponding author), 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. IF 2.444, Q1. Cover article.
13. ** Oshra Saphier, Tali Silberstein, Guy Yardeni, Jeanine Blumenfeld, Israel Zilbermann, Ariela Burg (corresponding author), Role of lycopene in preventing lipid peroxidation products in commercial infant milk formula. *The Journal of Maternal – Fetal and Neonatal Medicine* (2016), 29(17), 2865-2869. IF 1.674, Q2.
14. ** Ariela Burg (corresponding author), and Oshrat Levy-Ontman, Salt effect on the antioxidant activity of red microalgal sulfated polysaccharides in soy-bean formula. *Marine Drugs* (2015), 13(10), 6425-6439. IF 3.637, Q2, cited by 4.
15. ** Haya Kornweitz, Ariela Burg, Dan Meyerstein, Plausible mechanisms of the Fenton-like reactions, M = Fe(II) and Co(II), in the presence of RCO_2^- substrates: are $OH^\bullet$ radicals formed in the process? *Journal of Physical Chemistry A* (2015), 119(18), 4200-4206. IF 2.847, Q1, cited by 14.
16. ** Ariela Burg (corresponding author), Dror Shamir, Inna Shusterman, Haya Kornweitz, Dan Meyerstein, The role of carbonate as a catalyst of Fenton-like reactions in AOP processes, $CO_3^{\bullet -}$ as the active intermediate. *Chemical Communications* (2014), 50(86), 13096 – 13099. IF 6.319, Q1, cited by 11.
17. ** Ariela Burg (corresponding author), Inna Shusterman, Haya Kornweitz, Dan Meyerstein, Three H_2O_2 molecules are involved in the "Fenton-like" reaction between $Co(H_2O)_6^{2+}$ and H_2O_2. *Dalton Transactions* (2014), 43(24), 9111-9115. IF 4.029, Q1, cited by 9.
18. ** Jeanine Blumenfeld, Tali Silberstein, Ariela Burg, Oshra Saphier, Variability in omega-3 fatty acid content of canned tuna fish: results from a comparison of different preservation fluid. *Burapha Science Journal* (2013), 18, 2.
19. ** Oshra Saphier, Jeanine Blumenfeld, Tali Silberstein, Tamar Tzor, Ariela Burg (corresponding author), Fatty acid composition of breastmilk of Israeli mothers. *Indian Pediatrics* (2013), 50(11), 1044-1046. IF 1.152, Q2, cited by 9.
20. ** Tali Silberstein, Ariela Burg, Jeanine Blumenfeld, Boaz Sheizaf, Tamar Tzur, Oshra Saphier, Saturated fatty acid composition of human milk in Israel: A comparison between Jewish and Bedouin Women. *The Israel Medical Association Journal* (2013), 15, 156-159. IF 1.036, Q2, cited by 7.
21. ** Ariela Burg (corresponding author), Yaniv Wolfer, Haya Kornweitz, Limor Shenar-Jackson, Alexandra Masarwa, Dan Meyerstein, The Cu(I) catalyzed Meerwein reaction in aqueous solutions proceeds via a radical mechanism. The effect of several ligands. *Dalton Transactions* (2013), 42(14), 4985-4993. IF 4.029, Q1, cited by 1.
22. * Ariela Burg , Dan Meyerstein, The chemistry of monovalent copper in aqueous solutions. *Advances in Inorganic Chemistry* (2012), 64, 219-261. IF 3.105, Q1, cited by 13.
23. * Oshra Saphier, Tali Silberstein, Eldad Silberstein, Jeanine Blumenfeld, Tamar Tzur, Boaz Sheizaf, Ariela Burg (corresponding author), Breast milk of Jewish and Bedouin ethnic origins have a higher resistance against lipid peroxidation compare to milk substitutes. *BioChemistry: An Indian Journal* (2011), 5(2), 137-139. IF 0.11.

24. * Yair Lavi, Ariela Burg, Eric Maimon Dan Meyerstein, Electron exchange columns through entrapment of a nickel cyclam in a sol-gel matrix. *Chemistry--A European Journal* (2011), 17(18), 5188-5192. IF 5.317, Q1, cited by 4, cover article.
25. Naomi Schneid-Kofman, Tali Silberstein, Oshra Saphier, Iris Shai, Dorith Tavor, Ariela Burg, Labor augmentation with oxytocin decreases glutathione level. *Obstetrics and Gynecology International* (2009), 1-4, cited by 14.
26. Ariela Burg, Dan Meyerstein, Is it always correct to use the Marcus cross relation for calculations of electron self-exchange rates? *Inorganica Chimica Acta* (2010), 363(4), 737-740. IF 2.002, Q2, cited by 4.
27. Ariela Burg (corresponding author), Tali Silberstein, Guy Yardeni, Dorith Tavor, Jeanine Blumenfeld, Israel Zilbermann, Oshra Saphier, Role of radicals in the lipid peroxidation products of commercial infant milk formula. *Journal of Agricultural and Food Chemistry* (2010), 58(4), 2347-2350. IF 3.154, Q1, cited by 10.
28. Orit Paamoni-Keren, Tali Silberstein, Ariela Burg, Iris Raz, Moshe Mazor, Oshra Saphier, Oxidative stress as determined by glutathione (GSH) concentrations in venous cord blood in elective cesarean delivery versus uncomplicated vaginal delivery. *Archives of Gynecology and Obstetrics* (2007), 276(1), 43-46. IF 2.090, Q2, cited by 33.
29. Ariela Burg (corresponding author), Eric Maimon, Haim Cohen, Dan Meyerstein, Ligand effects on the chemical activity of copper(I) complexes: outer- and inner-sphere oxidation of CuIL. *European Journal of Inorganic Chemistry* (2007), 2007(4), 530-536. IF 2.444, Q1, cited by 9.
30. Ariela Burg, Evgenia Lozinsky, Haim Cohen, Dan Meyerstein, Mechanism of reduction of the nitrite ion by CuI complexes. *European Journal of Inorganic Chemistry* (2004), 2004(18), 3675-3680. IF 2.444, Q1, cited by 13.
31. Nadav Navon, Ariela Burg, Haim Cohen, Rudi Van Eldik, Dan Meyerstein, Ligand effects on the reactivity of $Cu^{I}L$ complexes towards $Cl_3CCO_2^-$. *European Journal of Inorganic Chemistry* (2002), 2002(2), 423-429. IF 2.444, Q1, cited by 8.
32. Ariela Burg, Haim Cohen, Dan Meyerstein, The reaction mechanism of nitrosothiols with copper(I). *Journal of Biological Inorganic Chemistry* (2000), 5(2), 213-217. IF 2.894, Q1, cited by 21.
33. Magal Saphier, Ariela Burg, Shlomit Sheps, Haim Cohen, Dan Meyerstein, Complexes of copper(I) with aromatic compounds in aqueous solutions. *Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry* (1999), 11, 1845-1850. IF 4.029, Q3, cited by 6.

b. Chapters in books

1. **Ariela Burg (corresponding author), Oshrat Levy-Ontman, Salt effect on the antioxidant activity of red microalgal sulfated polysaccharides in soy-bean formula. In book: *Marine polysaccharides*. Publisher: MDPI, Editor: P. Laurienzo, (2018), Vol.1, 98-109.
2. ** 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, Yekatrinburg, Editors: M. Zinigrad and L. Leontiev, Ural Branch Russian Academy of Sciences (2016), 180-185.

3. **Yael Albo, Michael Meistelman, Ariela Burg, Dror Shamir, "Entrapment of Ag^0 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, Ekaterinburg, Editors: M. Zinigrad and L. Pastukhuv, Ural Branch Russian Academy of Science (2016), 4-9.
4. **Ariela Burg (corresponding author), Yael Albo, Dror Shamir, Yair Lavi, Michael Meistelman, Neelam Singh, Dan Meyerstein, "Transition metal complexes and nano-particles entrapped in sol-gel matrices as electron exchange columns and as redox catalysts". In book: *The optimization of Composition, Structure and Properties of Metals, Oxides, Composites, Nano and Amorphous Materials*. Publisher: Russian Academy of Sciences, Ekaterinburg, Editors: M. Zinigrad and L. Pastukhuv, Ural Branch Russian Academy of Sciences, (2015), 59-70.

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Subjects of study – Ariela Burg

Expert in physical inorganic chemistry

Exponential population growth has led to rampant industrial development and the consequent pollution of water sources with heavy metals and toxic organic waste. It has also motivated investments on a global scale in the search for alternative energy sources. Principal among these is nuclear energy, which, insofar as it involves the use and/or production of radioactive elements, constitutes another source of highly toxic pollutants. Indeed, the ubiquity today of these major pollutants in our environment dictates the need for an immediate solution that is both efficient and cost-effective. In my research, therefore, I exploit conventional and traditional approaches as well as contemporary, experimental and theoretical methods to study three environmentally important subjects that, in turn, constitute the three main goals of my research: **1**) Principal among my research goals is to develop the sol-gel technology for its practical application in simple yet versatile water purification solutions for the removal of organic pollutants, heavy metals and radioactive cations from wastewater to facilitate its reuse. Israel is a leader in water technology, and the use of tailored sol-gel matrices will help position the country squarely at the forefront of this field. In my recent study in this field, I collaborated with Nuclear Research Center Negev (NRCN) on a project that was funded by the PAZY foundation. **2**) The Fenton reaction is important in two respects. It is considered the main source of hydroxyl radicals, which are known to be a principal cause of oxidative stress. The mechanism of this reaction is studied under a variety of conditions in my lab because of its environmental importance, namely, its use in the treatment of organic pollution. The overall goal of my research in this field is to integrate the sol-gel method with the Fenton reaction in a synergistic combination for the treatment of organic pollution by heterogeneous catalysis. **3**) In efforts to alleviate the energy shortage, numerous studies in recent years have sought ways to develop alternative energy sources, such as solar energy and energy from water. The main goal of this part of my research is to develop a method that generates high energy products via the electro catalysis of water. To that end, I am investigating nano particles, which are known to be efficient and selective catalysts. My research in this area is based on two methods of exploiting specific working electrodes: the entrapment of active nano particles in sol-gel electrodes and the formation of metasurfaces by dip pen nanolithography (DPN) technology, which can be used to create nanoparticle patterns on a surface. My work with electrodes and nano particles is done in collaboration with an electronics engineer from SCE. Because of the growing importance of nano particles and, in general, of various nano technology fields in a variety of practical applications, I am leading an initiative to establish a center at SCE that will be dedicated to nano related research. Research proposals relevant to each of my principal areas of study have been submitted to different foundations.

In my three primary areas of study, I use a variety of methods and instruments: Chromatography methods such as HPLC, GC, and IC, electrochemistry methods, ICP, spectrophotometer, stopped flow, BET, NMR, SEM, AFM, NLP 2000 and DFT calculations. My laboratory at SCE is equipped with most of the instruments needed to perform my research. The instruments that my laboratory lacks are available in other laboratories at SCE on a shared basis. As an independent researcher, I am a supervisor of 8 MSc students, 4 of whom recently completed their degrees and two of whom are registered at SCE. All of my students work in my lab at SCE. In addition, I have worked with 1 PhD student who completed his degree, and currently, 2 PhD students are working in my lab while pursuing their degrees.