

**Overall scorecard**

- 67 papers published in high IF journals (of which 65 at BIU); (+ 7 currently under review/resubmission)
- 3 chapters published in scientific books
- 11 grants won (all at BIU)
- 1 patent (covering many countries) + 4 provisional patents filed (all at BIU)
- 56 conference participations (of which 52 at BIU); (+33 invited talks at universities)
  - Of which, 5 keynote and 21 invited talks
- 6 Masters and 4 PhDs from the Nessim group
- Honored “Vebleo Fellow” (6/9/2021)
- Elected president of the Israel Vacuum Society (IVS) in March 2020
  - Organized 1 main conference, 2 student conference, 1 international workshop, and initiated the series “Big Topics from Top Scientists”

**Achievements since last promotion (Jan. 2018)**

- 32 papers published in high IF journals (+ 7 currently under review/resubmission)
  - Of which, 5 as sole corresponding author and 13 as joint corresponding author (with my group doing the chemical synthesis and the partner doing a device or an advanced characterization)
- 1 patent (now covering many countries) – H2020, Admaiora project
- 5 grants won (*MOST Battery Germany, MOST Nanophotonics, Full BSF, H2020, ISF*)
- 22 talks at local and international conferences
  - Of which, 2 keynote and 7 invited talks
- 2 Masters and 3 PhDs from the Nessim group
- Contributed to winning 5 EU mobility grants with Italy
- Honored “*Vebleo Fellow*” (6/9/2021)
- Elected president of the Israel Vacuum Society (IVS) in March 2020
  - Organized 1 main conference, 2 student conference, 1 international workshop, and initiated the series “*Big Topics from Top Scientists*”

## Gilbert Daniel Nessim, *PhD, MBA*

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*Faculty member at the Chemistry department at Bar Ilan University (Israel),  
Institute for Nanotechnology Advanced Materials (since October 2010)*

### FACULTY CAREER

**President** President of the Israel Vacuum Society (IVS)  
3/20 –

**Associate Professor** Chemistry Department and Center of Nanotechnology and Advanced Materials

Leading laboratory for the synthesis of nanomaterials  
1/18 –

**Senior Lecturer** Chemistry Department and Center of Nanotechnology and Advanced Materials

Leading laboratory for the synthesis of nanomaterials  
10/14 – 12/17

**Lecturer** Chemistry Department and Center of Nanotechnology and Advanced Materials  
10/10 – 9/14  
Leading laboratory for the synthesis of nanomaterials

### EDUCATION

**Post-doc** MIT / Bar Ilan University (Institute for Nanotechnology and Advanced materials)

**Cambridge, MA and Ramat Gan, Israel**

Collaborative post-doc with Professors C.V. Thompson, Y. Shao-Horn, and D. Aurbach

Visiting scientist in the electrochemistry group of Professor Doron Aurbach (summer 2009)

Focus on integrating carbon nanotubes into batteries and supercapacitors (MITEL grant)

**Ph.D** Massachusetts Institute of Technology (MIT)

**Cambridge, MA**

PhD, Materials Science & Engineering (electronic, photonic, and magnetic materials), 2009

Advisor: Professor Carl V. Thompson

Thesis: *carbon nanotube (CNT) synthesis for integrated circuit interconnects*

GPA 4.9/5.0; Intel Fellowship (2006-2008)

Supervised nine graduate students (MIT and international) and three MIT undergraduate students

Research involved multiple collaborations and led to the development of new insights on:

- Growth of crystalline, vertically-aligned CNTs on conductive substrates below 500°C
- Role of gas preheating to lower CNT growth temperature
- Control of CNT diameter and density via hydrogen-timed coarsening of catalyst layer
- Role of underlayer grains in catalyst film dewetting and CNT growth
- Electrical properties of multi-wall carbon nanotubes

**MBA** INSEAD

**Fontainebleau, France**

Master of Business Administration, 1994; Giovanni Agnelli scholarship

**Pre-Ph.D** Université Pierre et Marie Curie (Paris VI)

**Paris, France**

Opto-electronic Engineering (D.E.A. – Diplôme d'Etudes Approfondies), 1990-91,  
with distinction

**M.Sc** Ecole Centrale Paris

**Paris, France**

Master's of Science, 1989-91, with distinction; Erasmus (European Community) scholarship

First Italian to earn MSEE from Italy and France within the T.I.M.E. program (Top Industrial Managers for Europe)

**M.Sc** Politecnico di Milano

**Milan, Italy**

Master's of Science in Electrical Engineering, 1984-89, thesis passed in 1993,  
summa cum laude (top 0.5%)

## TEACHING EXPERIENCE AND STUDENT SUPERVISION PRIOR TO JOINING BIU

- Teaching assistant for graduate course “*Kinetics of Materials*” – Spring 2009
- Completed “Graduate Student Teaching Certificate Program” at MIT (2009)
- Supervised two MIT Masters of Engineering students
  - Hashina Parween, 2006-2007 M.Eng. *Carbon nanotube interconnects for IC chips*
  - Scott Rushfeldt, 2005-2006 M.Eng. *Sensor applications of carbon nanotubes*
- Supervised three MIT undergraduate students
  - BSc. *Effects of oxygen on the growth characteristics of carbon nanotubes on conductive substrates*
  - BSc. *Effects of catalyst pretreatment for CNT growth*
  - BSc. *The role of hydrogen in the growth of carbon nanotubes: a study of the catalyst state and morphology*
- Supervised six foreign Masters students (Nanotech Program – Politecnico di Torino, INPG Grenoble, EPFL Lausanne)
  - MSc. *Low temperature growth and characterization of crystalline, vertically aligned CNTs on conductive substrates for interconnect applications*
  - MSc. *Optimization of parameters for low temperature growth of vertically aligned CNTs on conductive substrates for I.C. interconnect applications*
  - MSc. *Growth of carbon nanotubes on conductive substrates into insulating templated anodized alumina scaffolds for interconnect applications*
  - MSc. *Low temperature growth of crystalline, vertically aligned CNTs on conductive substrates for interconnect applications*
  - MSc. *Design and Fabrication of nanostructures for carbon nanotube growth and characterization*
  - MSc. *Optimization of carbon nanotubes growth process for interconnect applications*
- Presented tutorial on carbon nanotubes at MIT in January 2008, 2009, and 2010:  
“*The Magic of Carbon Nanotubes: Properties, Growth, and Applications*”
- Taught chemistry to 11th grade students at Mesivta High School (Brighton, MA), 2003-2004

## PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

Materials Research Society (2004-)

Graduate Student Teaching Certificate Program (MIT), 2009

New Product Development Process (NPDP) – Product Development and Management Association (PDMA), 1999

Production & Inventory Management (CPIM) – American Production and Inventory Control Society (APICS), 1999

## LANGUAGES AND INTERNATIONAL EXPERIENCE

Trilingual Italian, French, and English; reading Hebrew

Summer technical training at the Technion, Israel Institute of Technology (IAESTE grant covering travel and lodging), Haifa, Israel, 1990

## PROFESSIONAL EXPERIENCE PRIOR TO DOING PhD AT MIT

### *12 years of innovation and product development experience with technology firms in USA and Europe*

#### **Director Research & Development, Private Company**– Boston, MA, Jan. 2002 – 2004

- Lead technology-related activities including consulting, innovation and new product development, research, analysis and making recommendation on investments in technology companies
- Submitted provisional patent for an innovative personal transportation vehicle
- Investigated (due diligence) a dozen technology start-ups in various technological areas (e.g. wireless video surveillance, radiological threat detection, collaboration software for military mapping, organic fruit coating, CO<sub>2</sub>/NO<sub>x</sub> pollution control, child locator, instant messaging, etc.)
- Helped closing three technology investments
- Interim-managed (COO/CTO) wireless surveillance start-up

#### **CTO, Co-founder, Private Company**– Newton, MA, July – December 2001

- Developed innovative portable projector prototype, filed provisional patent, and helped in raising funds
- Before incorporation, was hired by lead investor, owner of Boston Group Development Inc.

#### **Managing Consultant, Telecom & Interactive Media, Private Group** – Cambridge, MA, January – June 2001

- Contributed to business development of the new telecom practice to increase PA visibility in the USA
- Analyzed telecom investment portfolio of financial institution and recommended new investment mix.
- Prepared, launched, and managed marketing campaigns to networking equipment vendors (120 executives in 350 companies), to operators focused on 3G strategy and on revenue assurance

#### **Director of Business Development, Private Company, Chestnut Hill, MA, March – December 2000**

- Closely worked with SVP Business Development and CEO to develop partnership opportunities to enable profitable web-to-phone mobile access for Web content providers, broadcasters and telecom carriers.
- Developed strategic analysis of e-mail-by-phone market and identified niche opportunities
- Managed approach to develop strategic alliances with mail server companies and ISP's and lined up deals with 5 strategic partners
- Developed model to determine service costs and contributed to product marketing activities

#### **Senior Manager, Product Development, Private company, Waltham, MA and Oxford, UK, Jan. 1995 – June 2000**

- Expert member of the product development practice, participated in various knowledge management and business development activities
- Helped clients mostly to improve their operational strategies and processes in core areas such as product development and supply chain. Typical results include: better products developed, time-to-market reduction by 20% to 40%, development cost savings of 10% to 20%, strategy-led product and technology roadmaps, effective decision-making, best-practice processes, cross-functional teams, supply chain savings in the \$m's, etc.
- Worked with clients such as ICL, IBM, Xerox, Nokia, 3Com, Quantum, Eaton Corp, etc. in semiconductor equipment, disk-drives, networking equipment, mobile phones, personal computers, servers, telecom instrumentation, copiers & printers in the USA, UK, Finland and Israel.
- Sold new projects and extension projects in USA, UK, Ireland, and Italy
- In 1999, managed the most profitable and most attended international conference of the Product Development and Management Association (PDMA) as project manager, logistics manager, and CFO

#### **R&D Engineer, Project Manager, Private company, Gien, France, and Farmington, CT, March 1991 – Dec. 1993**

At the European R&D Center based in France, invented, developed, patented, tested, and managed the implementation of an innovative infrared electronic detector for elevator doors, more reliable and 40% cheaper than existing detectors. Also coordinated its implementation, qualification, tests and prototype installations on job-sites. Coordinated European R&D with US team on another development to ensure compliance with European standards. Managed team of technicians as functional manager of electromechanical door equipment department

## GRANTS

- 2021-2025 [ISF \(Israel Science Foundation\)](#), *Advanced Antimicrobial and Antiviral Nanocarbon Synergistic Surfaces* (year 1/4, shared with Profs. C. Arnusch (BGU) and Prof. N. Lachman (TAU))
- 2019-2022 [MOST \(Ministry of Science and Technology\)](#), [Nanophotonics Research Program](#) “Compact monolithic wavelength-tunable microcavity diode laser based on electro-optic modulation of 2D nanomaterial thin films”  
Collaboration with Dr. Yaakov Tischler and Prof. Ilya Grinberg, (3 years)
- 2019-2022 [BSF full](#) (collaboration with Cary Pint, Iowa State University), “Stress-Controlled Electrochemistry in 2D Materials”, (3 years)
- 2019-2022 [MOST \(Ministry of Science and Technology\)](#), [German-Israeli Battery and Electrochemistry Research Program](#) “Development of Nanostructured Transition Metal Phosphides: High-Capacity Anodes for Stable Sodium Ion Batteries” (3 years)
- 2019-2023 [Horizon 2020](#), H2020-NMBP-TR-IND-2018, 814413-2 ADMAIORA, “Advanced nanocomposite MAterIals fOr in situ treatment and ultRASound-mediaTed management of osteoarthritis”, collaboration with Prof. Leonardo Ricotti and many partners, (4 years)  
INREP 2 led by Prof. Doron Aurbach, (ISF Petroleum Alternatives for Transportation Centers of Excellence) (year 4/4)
- 2019 INREP 2 led by Prof. Doron Aurbach, (ISF Petroleum Alternatives for Transportation Centers of Excellence), (year 3/4)
- 2018 INREP 2 led by Prof. Doron Aurbach, (ISF Petroleum Alternatives for Transportation Centers of Excellence), (year 3/4)
- 2017-2020 [International Atomic Energy Agency CRP grant](#), “Investigation of ion irradiation on p-type copper chalcogenide 2D layers synthesized using chemical vapor deposition and fabrication of original heterojunctions”,
- 2017 INREP 2 led by Prof. Doron Aurbach, (ISF Petroleum Alternatives for Transportation Centers of Excellence), (year 2/4)
- 2016 INREP 2 led by Prof. Doron Aurbach, (ISF Petroleum Alternatives for Transportation Centers of Excellence), (year 1/4)
- 2015-2016 [BSF starter](#) (collaboration with Cary Pint, Vanderbilt), (2 years)
- 2013-2016 INREP led by Prof. Doron Aurbach (ISF Petroleum Alternatives for Transportation Centers of Excellence), (4 years)
- 2013-2014 [Kamin](#) (Ministry of Industry): Synthesis of highly conductive metal-CNT (carbon nanotube) coated wire, (2 years)
- 2010-2014 [FP7 Marie Curie](#) (European Union Reintegration Grant), salary and research,
- Note: participated in writing the winning United States-Israel Binational Science Foundation (BSF) grant, on developing carbon nanotube-based batteries and supercapacitors (\$240,000 to Prof. Doron Aurbach’s lab, 2010-2015)

## INDUSTRIAL FUNDING

- 2014 Private Company, service agreement for fabrication of nanostructured filters,

## POSTDOCTORAL GRANTS

- 2020-2022 [PBC Fellowship for postdoc from India \(Dr. Sumit Majumder\)](#), (3 years)
- 2019-2021 [PBC Fellowship for postdoc from India \(Dr. Arka Saha; joint with Dr. Malachi Noked\)](#), (3 years)
- 2016-2018 [PBC Fellowship for postdoc from India \(Dr. Subodh Kumar\)](#), (3 years)

- 2015-2018 PBC Fellowship for postdoc from India (Dr. Sanny Verma), (3 years)  
(but ultimately did not come to BIU)

## MOBILITY GRANTS

- 2018-2019 Contributed significantly to set collaborations that led to EU Erasmus Mobility grants with:  
Politecnico di Milano  
Universita' di Brescia  
Universita' di Bergamo  
Ca' Foscari

## CONSULTING

## INTERNATIONAL COLLABORATIONS

- Massachusetts Institute of Technology (MIT): *Prof. Carl V. Thompson, Prof. A. John Hart, Prof. Mark Drela*
- Scuola Superiore Sant'Anna di Pisa, biorobotics: *Prof. Leonardo Ricotti*
- Nanyang Technological University (NTU), Singapore: *Dr. Matteo Seita*
- ETH Zurich: *Prof. Ralph Spolenak*
- University of Leipzig, Division of Superconductivity and Magnetism: *Prof. Pablo D. Esquinazi*
- Iowa State University: *Prof. Cary L. Pint*
- Chemical Sciences Division, CSIR-Indian Institute of Petroleum, Mohkampur: *Prof. Suman L. Jain*
- Politecnico di Milano: *Prof. Marco Sampietro, Prof. Giorgio Ferrari, Prof. Enrico Prati, Prof. Francesco Scotognella, Prof. Maria Vittoria Diamanti*
- Universita' di Bergamo: *Prof. Valerio Re, Prof. Giuseppe Rosace*
- Universita' di Verona: *Prof. Gino Mariotto, Dr. Marco Zanatta*
- Ca' Foscari (Venezia): *Prof. Salvatore Daniele, Prof. Achille Giacometti, Prof. Elti Cattaruzza*
- Warwick University (UK): *Prof Tony McNally*
- Universita' di Brescia: *Prof. Elisabetta Comini*

## **CURRENT TEAM MEMBERS**

Dr. Eti Teblum, lab manager, since 6/2010  
Jonathan Richter, Toar Rishon, visiting student since 7/2018  
Dr. Arka Saha, postdoc, PBC fellowship, since 8/2018 (shared with Dr. M. Noked)  
Rajashree Konar, Ph.D candidate, since 10/2018 (visiting student summer 2018)  
Madina Telkhozhayeva, Ph.D candidate, since 10/2018  
Dr. Baruch Hirsch, Ph.D candidate since 1/2019 (collaboration with Prof. D. Aurbach)  
Dr. Efrat Shawat Avraham, postdoc, since 10/2019  
Alina Yarmolenko, MSc, since 10/2019  
Bibhu Datta, PhD, since 10/2019  
Noam Levi, Masters, since 8/2021

## **PAST TEAM MEMBERS**

Dr. Haviv Grisaru, postdoc, lab manager, 2/2011 – 11/2011  
Raj Krishnan, postdoc, 3/2012 – 10/2012 (co-supervised with Prof. Lellouche)  
Ilan Oussadon, M.Sc. candidate, 10/2011 – 3/2012  
Alex Tangy, Ph.D. candidate, 10/2011 – 3/2012  
Asaf Cohen, M.Sc. candidate, since 9/2013 – 3/2014 (co-supervised with Dr. Alex Schechter (Ariel))  
Yana Simony, Ph.D. candidate, 12/2012 – 5/2014 (then supervised by Dr. Zitoun)  
Miriam Somekh, M.Sc. 2014 (**Masters**)  
Dr. Revital Balter, postdoc, 9/2014 – 8/2015  
Reut Yemini, M.Sc. 2017 (**Masters**)  
Merav Muallem, Ph.D. 2017, (co-supervised with Dr. Tischler) (**PhD**)  
Dr. Subodh Kumar, postdoc, PBC fellowship, 8/2015 – 8/2107  
Anat Itzhak, M.Sc, 2015 – 2017 (**Masters**)  
Tali Sharabani, M.Sc, 2015 – 2017 (**Masters**)  
Yulia Kostikov, M.Sc., 9/2016 – 10/2018 (**Masters**)  
Efrat Shawat Avraham, M.Sc. & Ph.D, 3/2011 – 12/2018 (**Masters and PhD**)  
Dr. Suparna Das, postdoc, PBC fellowship, February 2019 – November 2019  
Pola Schriber, Ph.D, 9/2015 – 12/2020 (**PhD**)  
Tarik Aziz, Ph.D candidate, 3/2017 – 1/2021 (**PhD**)  
Dr. Sumit Majumder, postdoc, 9/2019 – 6/2021

## **PAST VISITING STUDENTS**

Ortal Kravian, visting B.Sc. summer student from BIU, 6/2011 – 9/2011  
André Röthlisberger, visiting M.Sc. summer student from ETH Zurich, 30/6/2011 – 30/9/2011  
Nathan Monroe, MIT (MISTI) visiting student summer 2011 (co-supervised with Dr. Tischler)  
Alain Reiser, visiting M.Sc. summer student from ETH Zurich, 30/6/2012 – 1/9/2012  
Jelimo Maswan, MIT (MISTI) visiting student summer 2012 (co-supervised with Dr. Tischler)  
Shoshy Bernstein, visiting B.Sc. summer student, 1/6/2012 – 1/9/2012  
Levi Rybalov, visiting student (pre-B.Sc.), 1/2/2013 – 25/6/2013  
Joanna Chen, MIT (MISTI) visiting student summer 2013 (co-supervised with Dr. Tischler)  
Andrew Westover (Vanderbilt), visiting student summer 2016 (student of Prof. Cary L. Pint)  
Arun Kumar (University of Verona), visiting student summer 2017 (student of Prof. Gino Mariotto)  
Sasha Ohayon, visiting student (pre-B.Sc.), 2/2018 – 8/2018  
Yana Zubarev, B.Sc. summer visiting student from Clark University 2018  
Phillip Nagler, B.Sc. summer visiting student from Yeshiva University 2018  
Rivka Greenstone, visiting student BIU, B.Sc. summer 2019  
Gabi Bentolila, visiting student, 10/2019 – 6/2020

**COURSES TAUGHT AT BIU**

Kinetics of Materials 1; 2011 – 2021

Seminarion (materials); 2011 – 2016

Kinetics of Materials 2; 2012 – 2014, 2016 – 2019, 2021

Invention; 2014, 2017, 2019, 2021

Introduction to solid state; 2015 – 2021

**COURSES TAUGHT OUTSIDE BIU**

Case studies in 1D and 2D nanostructure synthesis with key concepts of kinetic processes in materials, Università' di Bergamo (Italy), 19–22 February 2018 (visiting professor)

Case studies in 1D and 2D nanostructure synthesis with key concepts of kinetic processes in materials, Università' di Bergamo (Italy), 24–27 June 2019 (visiting professor – sponsored by EU Mobility Grant)



## PUBLICATIONS IN SCIENTIFIC REFEREED JOURNALS

[Impact factor (rounded)]

First author(s) is (are) underlined and corresponding author is **bold\***

### 2021

1. B. Malik, **K.V. Sankar\***, S.K.T. Aziz, S. Majumder, Y. Tsur, and **G.D. Nessim\***  
Uncovering the Change in Catalytic Activity during Electro-oxidation of Urea: Answering Overisolation of the Relaxation Phenomenon  
**Journal of Physical Chemistry C** [4.1], (*in press*), October 2021
2. A. Saha, N. Shpigel, N. Leifer, S. Taragin, T. Sharabani, H. Aviv, I. Perelshtein, **G.D. Nessim\***, **M. Noked\***, and Y. Gogotsi  
Enhancing the Energy Storage Capabilities of Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene Electrodes by Atomic Surface Reduction  
**Advanced Functional Materials** [18.8], (*in press*), September 2021
3. **L. Vannozzi\***, E. Catalano, M. Telkhozayeva, E. Teblum, A. Yarmolenko, E. Shawat Avraham, R. Konar, G.D. Nessim, and L. Ricotti  
*Graphene Oxide and Reduced Graphene Oxide Nanoflakes Coated with Glycol Chitosan, Propylene Glycol Alginate, and Polydopamine: Characterization and Cytotoxicity in Human Chondrocytes*  
**Nanomaterials** [5.1], 11(8), 2105, Aug. 2021
4. S.K.T. Aziz, S. Kumar, Sk Riyajuddin, **K. Gosh\***, **G.D. Nessim\***, and **D.P. Dubal\***  
*Bimetallic phosphides for hybrid supercapacitors*  
**The Journal of Physical Chemistry Letters** [6.5], 12, 21, 5138–5149, May 2021
5. M. Telkhozayeva, E. Teblum, R. Konar, O. Girshevitz, I. Perelshtein, and **G.D. Nessim\***  
*Higher Ultrasonic Frequency Liquid Phase Exfoliation as a More Efficient Method to Deposit Monolayer to Few-Layer Flakes of 2D Layered Materials*  
**Langmuir** [3.9], 37,15, 4504-4514, March 2021
6. **D. Trucco\***, L. Vannozzi, E. Teblum, M. Telkhozayeva, G.D. Nessim, S. Affatato, H. Al-Haddad, **G. Lisignoli\***, and **L. Ricotti\***  
*Graphene Oxide-Doped Gellan Gum–PEGDA Bilayered Hydrogel Mimicking the Mechanical and Lubrication Properties of Articular Cartilage*  
**Advanced Healthcare Materials** [9.9],10, 2001434, Feb. 2021
7. B. Malik, K.V. Sankar, R. Konar, Y. Tsur, and **G.D. Nessim\***  
*Determining the Electrochemical OER Kinetics of Fe<sub>3</sub>S<sub>4</sub>@Ni<sub>3</sub>S<sub>2</sub> Using Distribution Function of Relaxation Times*  
**ChemElectroChem** [4.6], 8, 517 – 523, Feb. 2021
8. **S. Affatato\***, D. Trucco, P. Taddei, L. Vannozzi, L. Ricotti, G. Nessim, G. Lisignoli  
*Wear Behavior Characterization of Hydrogels Constructs for Cartilage Tissue Replacement*  
**Materials** [3.6],14, 428, Jan. 2021
9. A. Moumen, R. Konar, D. Zappa, E. Teblum, I. Perelshtein, R. Lavi, S. Ruthstein, **G.D. Nessim\***, and **E. Comini\***  
*Robust Room-Temperature NO<sub>2</sub> Sensors from Exfoliated 2D Few-Layered CVD-Grown Bulk Tungsten Di-selenide (2H-WSe<sub>2</sub>)*  
**ACS Applied Materials and Interfaces** [9.2], 13, 3, 4316–4329, Jan. 2021
10. R. Konar, S. Das, E. Teblum, A. Modak, I. Perelshtein, J.J. Richter, **A. Schechter\***, and **G.D. Nessim\***  
*Facile and Scalable Ambient Pressure Chemical Vapor Deposition-Assisted Synthesis of Layered Silver Selenide (β-Ag<sub>2</sub>Se) on Ag foil as an Oxygen Reduction Catalyst in Alkaline Medium*  
**Electrochimica Acta** [6.9], 370, 137709, Jan. 2021

2020

11. L. Rovinsky,\*, B.K. Barick, T. Segel-Peretz, E. Shawat Avraham, G.D. Nessim, and **N. Lachman\***  
*Alumina Thin-Film Deposition on Rough Topographies Comprising Vertically Aligned Carbon Nanotubes: Implications for Membranes, Sensors, and Electrodes*  
**ACS Applied Nano Materials** [5.1] 4, 322–330, Jan. 2021
12. S.K.T. Aziz, B. Malik, HK Sadhanala, **A. Gedanken\***, **M. Noked\***, and **G.D. Nessim\***  
*Nickel-Rich Phosphide (Ni<sub>12</sub>P<sub>5</sub>) Nanosheets Coupled with Oxidized Multiwalled Carbon Nanotubes for Oxygen Evolution*  
**ACS Applied Nano Materials** [5.1] 3, 11, 10914–10921, Nov. 2020
13. V. Trovato, E. Teblum, Y. Kostikov, A. Pedrana, V. Re, **G.D. Nessim\***, and **G. Rosace\***  
*Electrically conductive cotton fabric coatings developed by silica sol-gel precursors doped with surfactant-aided dispersion of vertically aligned carbon nanotubes fillers in organic solvent-free aqueous solution*  
**Journal of Colloid and Interface Science** [8.1] Vol. 586, P. 120-134, 15 March 2021
14. R. Konar, Rosy, I. Perelshtein, E. Teblum, M. Telkhozhayeva, M. Tkachev, J.J. Richter, E. Cattaruzza, A. Pietropolli Charmet, P. Stoppa, **M. Noked\***, and **G.D. Nessim\***  
*Scalable synthesis of few-layered 2D tungsten di-selenide (2H-WSe<sub>2</sub>) nanosheets directly grown on tungsten (W) foil using ambient pressure chemical vapor deposition for reversible Li-ion storage*  
**ACS Omega** [3.5] + Inside cover 5 (31), 19409-19421, July 2020
15. A Saha, T Sharabani, E Evenstein, **G.D. Nessim\***, **M. Noked\***, R. Sharma  
*Probing Electrochemical Behaviour of Lignocellulosic, Orange Peel Derived Hard Carbon as Anode for Sodium Ion Battery*  
**Journal of The Electrochemical Society** [4.3] 167 (9), 090505, March 2020
16. Sk Riyajuddin, S.K.T. Aziz, Sushil Kumar, G.D. Nessim, and **K. Ghosh\***,  
*3D-Graphene Decorated with Cu<sub>3</sub>P/g-C<sub>3</sub>N<sub>4</sub> Mixture: A Noble- Metal free Bifunctional Electrocatalyst for overall water splitting*  
**ChemCatChem** [5.7] (Vol. 12, Issue 5; P. 1394-1402), March 2020
17. V. Trovato, E. Teblum, Y. Kostikov, A. Pedrana, V. Re, **G.D. Nessim\***, and **G. Rosace\***  
*Sol-gel approach to incorporate millimeter-long carbon nanotubes into fabrics for the development of electrical-conductive textiles*  
**Materials Chemistry and Physics** [4.1], 240,122218, Jan. 2020
18. Y. Chemla, E. Teblum, A. Markus, E. Shawat Avraham, A. Slotsky, Y. Kostikov, N. Farah, M. Telkhozhayeva, G.D. Nessim, **Y. Mandel\***  
*Carbon nanostructures as a scaffold for human embryonic stem cells differentiation toward photoreceptor precursors*  
**Nanoscale** [7.8] 12 (36), 18918-18930, September 2020
19. S. Das, S. Chatterjee, S. Mondal, A. Modak, B. Krishna Chandra, S. Das, G.D.Nessim, A. Majee, and **A. Bhaumik\***  
*Thiadiazole containing N-and S-rich highly ordered periodic mesoporous organosilica for efficient removal of Hg (ii) from polluted water*  
**Chemical Communications** [6.2] 56 (28), 3963-3966, Jan. 2020
20. Subod Kumar, S.K.T. Aziz, Sushil Kumar, Sk. Riyajuddin, G. Yaniv, **L. Meshi\***, **G.D. Nessim\***, and **K. Ghosh\***  
*Three-Dimensional Graphene Decorated Copper-Phosphide (Cu<sub>3</sub>P@ 3DG) Heterostructure as Effective Electrode for Supercapacitor*  
**Frontiers in Materials** [2.7] 7, 30, March 2020

## 2019

21. A. Kumar, Y. Kostikov, M. Zanatta, G.D. Sorarù, B. Orberger, G.D. Nessim, and **G. Mariotto\***  
*Carbon nanotubes synthesis using siliceous breccia as a catalyst source*  
**Diamond and Related Materials** [3.3], Vol. 97, 2019
22. A. Setzer, **P.D. Esquinazi\***, L. Botsch, O. Bahre, E. Teblum, A. Itzhak, and G.D. Nessim  
*Magnetic phase transitions around room temperature in  $Cu_9S_5$*   
**Phase Transitions** [1.5], Vol. 92, Issue 4, P. 385-395, 2019
23. E. Shawat Avraham, O. Girshevitz, A. Westover, C.L. Pint, and **G.D. Nessim\***  
*Controlling Molybdenum reservoir thickness to enhance the growth of carbon nanotube forests*  
**Nanoscale** [7.8], Vol.11, P.1929, 2019
24. V. Shokhen, Y. Kostikov, I. Borge-Durán, Y. Gershinsky, **I. Grinberg\***, **G.D. Nessim\***, and **D. Zitoun\***  
*Scalable Silver Oxo-Sulfide Catalyst for Electrochemical Water Splitting*  
**ACS Applied Energy Materials** [6.0] Vol. 2, Issue 1, 788–796, January 2019

## 2018

25. A. Kumar, Y. Kostikov, B. Orberger, G.D. Nessim, and **G. Mariotto\***  
*Natural Laterite as a Catalyst Source for the Growth of Carbon Nanotubes and Nanospheres*  
**ACS Applied Nano Materials** [5.1] Vol.1, (11), 6046–6054, 2018
26. C. Meng, N. Muralidharan, E. Teblum, K. Moyer, G.D. Nessim, and **C.L. Pint\***  
*Multifunctional Structural Ultra-Battery Composite*  
**Nano Letters** [11.2], Vol.18 (12), 7761–7768, 2018
27. N. Muralidharan, E. Teblum, A. Westover, D. Schauben, A. Yitzhak, M. Muallem, G.D. Nessim, and **C.L. Pint\***  
*Carbon Nanotube Reinforced Structural Composite Supercapacitor*  
**Scientific Reports** [4.4], 8:17662, 2018
28. M. Mu, E. Teblum, L. Figiel, G.D. Nessim, and **T. McNally\***  
*Correlation between MWCNT aspect ratio and the mechanical properties of composites of PMMA and MWCNTs*  
**Materials Research Express** [1.6], Vol.5, 045305, 2018
29. P. Shriber, G.D. Nessim, and **I. Grinberg\***  
*First-Principles Investigation of Black Phosphorus Synthesis*  
**The Journal of Physical Chemistry Letters** [6.5], Vol. 9, 1759–1764, 2018
30. A. Itzhak, E. Teblum, O. Girshevitz, S. Okashy, Y. Turkulets, L. Burlaka, G. Cohen-Taguri, E. Shawat Avraham, M. Noked, **I. Shalish\***, and **G.D. Nessim\***  
*Digenite ( $Cu_9S_5$ ): layered p-type semiconductor grown by reactive annealing of copper*  
**Chemistry of Materials** [9.8], Vol. 30, 2379–2388, 2018
31. E. Shawat Avraham, A.S. Westover, L. Shani, V. Mor, O. Girshevitz, C.L. Pint, and **G.D. Nessim\***  
*Patterned growth of carbon nanotube forests using Cu and Cu/Ag thin film reservoirs as growth inhibitors*  
**Carbon** [9.6], Vol. 130, 273–280, 2018
32. S. Kumar, SK T. Aziz, O. Girshevitz, and **G.D. Nessim\***  
*One-Step Synthesis of N-Doped Graphene Quantum Dots from Chitosan as a Sole Precursor using Chemical Vapor Deposition*  
**Journal of Physical Chemistry C** [4.1], Vol. 122, 2343–2349, 2018

## 2017

33. G. Grinbom, M. Muallem, **D. Zitoun\***, and **G.D. Nessim\***  
*Direct growth of CNTs on Si-Fe NPs with chemical vapor deposition (CVD) method for improvement anode material in Li-ion batteries*  
**Journal of Physical Chemistry C** [4.1], 121, 25632–25640, 2017
34. O. Girshevitz, V. Richter, E. Shawat Avraham, **G.D. Nessim\***, and I. Gouzman  
*Correlation between density and hydrogen content in vertically aligned carbon nanotube forests by Ion Beam Analysis*  
**Journal of Vacuum Science and Technology A** [2.4], Vol.35, Issue 6, 2017
35. R. Yemini, A. Itzhak, Y. Gofer, T. Sharabani, M. Drela, and **G.D. Nessim\***  
*Nickel overlayers modify precursor gases to pattern forests of carbon nanotubes*  
**Journal of Physical Chemistry C** [4.1], 121 (21), 11765–11772, 2017
36. E. Shawat Avraham, O. Fleker, L. Benisvy, L. Oakes, C.L. Pint, and **G.D. Nessim\***  
*Inducing porosity and growing carbon nanofibers in ferroin perchlorate: an example of morphological transitions in coordination complexes*  
**Journal of Solid State Chemistry** [3.5], Vol.23, 21–28, Sept. 2017
37. S. Kumar, S. Gonen, A. Freidman, L. Elbaz, and **G.D. Nessim\***  
*Doping and reduction of graphene oxide using chitosan-derived volatile N-heterocyclic compounds for metal-free oxygen reduction reaction*  
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## 2016

38. O. Marciano, S. Gonen, N. Levy, E. Teblum, R. Yemini, G.D. Nessim, S. Ruthstein, **L. Elbaz\***  
*Modulation of Oxygen Content in Graphene Surfaces Using Temperature Programmed Reductive Annealing: Electron Paramagnetic Resonance (EPR) and Electrochemical Study*  
**Langmuir** [3.9] 32 (44), pp 11672–11680, 2016
39. E. Teblum, A. Itzhak, E. Shawat-Avraham, M. Muallem, R. Yemini, and **G.D. Nessim\***  
*Differential Preheating of Hydrocarbon Decomposition and Water Vapor Formation Shows That Single Ring Aromatic Hydrocarbons Enhance Vertically Aligned Carbon Nanotubes Growth*  
**Carbon** [9.6] Vol. 109, P.727-736, November 2016
40. R. Yemini, M. Muallem, T. Sharabani, E. Teblum, Y. Gofer, **G.D. Nessim\***  
*Patterning of Forests of Carbon Nanotubes (CNTs) Using Copper Overlayers as Iron Catalyst De-Activators*  
**Journal of Physical Chemistry C** [4.1], Vol. 120 (22), P. 12242–12248, May 2016
41. M. Muallem, A. Palatnik, G.D. Nessim, **Y.R. Tischler\***  
*Strong Light-Matter Coupling and Hybridization of Molecular Vibrations in a Low-Loss Infrared Microcavity*  
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42. M. Muallem, A. Palatnik, G. Nessim, **Y.R. Tischler\***  
*Strong Light-matter Coupling Between a Molecular Vibrational Mode in a PMMA Film and a Low-loss Mid-IR Microcavity*  
**Annalen der Physik** [3] Vol. 528, Issue: 3-4, P. 313-320, April 2016
43. Q. Wang, P. Subramanian, A. Schechter, E. Teblum, R. Yemini, G.D. Nessim, A. Vasilescu, M. Li, R. Boukherroub, **S. Szunerits\***  
*Vertically aligned nitrogen-doped carbon nanotube carpet electrodes: highly sensitive interfaces for the analysis of serum from patients with inflammatory bowel disease*  
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44. I. Gouzman, O. Girshevitz, V. Richter, E. Shawat Avraham, C. Sukenik, **G.D. Nessim\***  
*High Rate of Hydrogen Incorporation in Vertically Aligned Carbon Nanotubes During Initial Stages of Growth Quantified by Elastic Recoil Detection*  
**Journal of Physical Chemistry C** [4.1], Vol. 119, P. 26726–26733, November 2015
45. J. Barzola-Quiquia, **P. Esquinazi\***, M. Lindel, D. Spemann, M. Muallem, and G.D. Nessim  
*Superconductivity and magnetic order observed in bundles of Double-Wall Carbon Nanotubes*  
**Carbon** [9.6] Vol. 88, P. 15-25, July 2015
46. S. Verma, S. Kumar, E. Shawat, G.D. Nessim, and **S.L. Jain\***  
*Carbon nanofibers decorated with oxo-rhenium complexes as efficient heterogeneous catalyst for oxidation of amines*  
**Journal of Molecular Catalysis A: Chemical** [5.1], Vol. 402, P. 46-53, June 2015
47. S. Kumar, S. Verma, E. Shawat, G.D. Nessim, and **S.L. Jain\***  
*Amino-functionalized carbon nanofibres as an efficient metal free catalyst for the synthesis of quinazoline-2,4(1H,3H)-diones from CO<sub>2</sub> and 2-aminobenzonitriles*  
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48. M. Muallem, A. Palatnik, G.D. Nessim, and **Y.R. Tischler\***  
*Room temperature fabrication of dielectric Bragg reflectors composed of a CaF<sub>2</sub>/ZnS multilayered coating*  
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49. P. Subramanian, A. Cohen, E. Teblum, G.D. Nessim, and **A. Schechter\***  
*Electro-catalytic activity of nitrogen plasma treated vertically aligned carbon nanotube carpets towards oxygen reduction reaction*  
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50. M. Somekh, E. Shawat, and **G.D. Nessim\***  
*Fully reproducible, low-temperature synthesis of high-quality, few-layer graphene on nickel via preheating of gas precursors using atmospheric pressure chemical vapor deposition*  
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51. Y. Miroshnikov, G. Grinbom, G. Gershinsky, G.D. Nessim, and **D. Zitoun\***  
*Do we Need Covalent Bonding of Si nanoparticles on Graphene Oxide for Li-ion Batteries?*  
**Faraday Discussions** [4.0], P.391-402, Vol.173, 2014
52. E. Shawat, I. Perelshtein, A. Westover, C.L. Pint, and **G.D. Nessim\***  
*Ultra high-yield synthesis of self-assembled, conductive, and superhydrophobic three-dimensional mats of carbon nanofibers via full catalysis of unconstrained thin film*  
**Journal of Materials Chemistry A** [12.7], P. 15118–15123, Issue 36, September 2014
53. E. Teblum, M. Noked, A. Kerman, M. Muallem, Y.R. Tischler, D. Aurbach, and **G.D. Nessim\***  
*Millimeter-Tall Carpets of Vertically Aligned Crystalline Carbon Nanotubes Synthesized on Copper Substrates for Electrical Applications*  
**Journal of Physical Chemistry C** [4.1], P. 19345–19355, Vol. 118/33, August 2014
54. E. Shawat, Mor V., Y. Flegler, L. Oakes, C.L. Pint, and **G.D. Nessim\***  
*What is below the support layer affects carbon nanotube growth: an iron catalyst reservoir yields taller nanotube carpets*  
**Nanoscale** [7.8], P. 1545-1551, Vol. 6, Jan. 2014

55. O. Mero, E. Shawat, G.D. Nessim, J. Grinblat, and **S. Margel\***  
*Air-stable nanogranular Fe thin films formed by Chemical Vapor Deposition of triiron dodecacarbonyl as catalysts for carbon nanotube growth*  
**Thin Solid Films** [2.2], P. 76–84, Vol. 550, Jan. 2014

### 2013

56. A. Röthlisberger, M. Seita, A. Reiser, E. Shawat, R. Spolenak, and **G.D. Nessim\***  
*Investigating the Mechanism of Bidirectional Growth of Carbon Nanofiber Carpets on Metallic Substrates*  
**Carbon** [9.6], P. 498–507, Vol. 63, Nov. 2013
57. R. Shapira, G.D. Nessim, T. Zimrin, and **D. Aurbach\***  
*Towards promising electrochemical technology for load leveling applications: extending cycle life of lead acid batteries by the use of carbon nano-tubes (CNTs)*  
**Energy & Environmental Science** [38.5], P. 587-594, Vol. 6/2, Feb. 2013

### 2012

58. E. Teblum, Y. Gofer, C.L. Pint, and **G.D. Nessim\***  
*The role of catalyst oxidation state in the synthesis of tall carpets of vertically aligned carbon nanotubes*  
**Journal of Physical Chemistry C** [4.1], P. 24522-24528, Vol. 116/46, Nov. 2012
59. **G.D. Nessim\***, A. Al-Obeidi, H. Grisaru, E.S. Polsen,<sup>[SEP]</sup>C.R. Oliver, T. Zimrin, A.J. Hart, D. Aurbach, and C.V. Thompson  
*Synthesis of tall carpets of vertically aligned carbon nanotubes by in situ generation of water vapor through preheating<sup>[SEP]</sup> of added oxygen*  
**Carbon** [9.6], P. 4002–4009, Vol. 50, April 2012
60. G. Gershinsky, H. Ortal, G. Salitra, J. Grinblat, E. Levi, G.D. Nessim, E. Zinigrad, and **D. Aurbach\***  
*Ultra fast elemental synthesis of high yield copper Chevrel phase with high electrochemical performance*  
**Journal of Solid State Chemistry** [3.5], P. 50-58, Vol. 188, April 2012

### 2011

61. **G.D. Nessim\***, M. Seita, D.L. Plata, K.P. O'Brien, A.J. Hart, C.M. Reddy, P.M. Gschwend, and C.V. Thompson  
*Precursor gas chemistry determines the crystallinity of carbon nanotubes synthesized at low temperature*  
**Carbon** [9.6], P. 804-810, Vol. 49/3, March 2011
62. N.D.R. Leifer, M. Noked, G.D. Nessim, and **D. Aurbach\***  
*Straightforward Method for the Characterization of Carbon Nanotube Suspensions*  
**Carbon** [9.6], P. 1042-1047, Vol. 49/3, March 2011

### 2010

63. **G.D. Nessim\***, M. Seita, K.P. O'Brien, S.A. Speakman  
*Dual formation of carpets of large carbon nanofibers and thin crystalline carbon nanotubes from the same catalyst-underlayer system*  
**Carbon** [9.6], P.4519-4526, Vol. 48/15, Dec. 2010
64. **G.D. Nessim\***  
*Carbon nanotube synthesis with special focus on thermal chemical vapor deposition*  
**Nanoscale** [7.8], Invited review paper, P.1306-23, Vol. 2/8, March 2010
65. G.D. Nessim, D. Acquaviva, M. Seita, K.P. O'Brien, and **C.V. Thompson\***  
*The Critical Role of the Underlayer Material and Thickness in Growing Vertically Aligned Carbon Nanotubes and Nanofibers on Metallic Substrates by Chemical Vapor Deposition*  
**Advanced Functional Materials** [18.8], P.1306-1312, Vol. 20, April 2010

## 2009

66. G.D. Nessim, M. Seita, K.P. O'Brien, A.J. Hart, R.K. Bonaparte, R.R. Mitchell, and **C.V. Thompson\***  
*Low Temperature Synthesis of Vertically Aligned Carbon Nanotubes with Ohmic Contact to Metallic Substrates Enabled by Thermal Decomposition of the Carbon Feedstock*  
**Nano Letters** [11.2], P.3398-3405, Vol. 9/10, Oct. 2009

## 2008

67. G.D. Nessim, A.J. Hart, J.S. Kim, D. Acquaviva, J. Oh, C.D. Morgan, M. Seita, J.S. Leib, and **C.V. Thompson\***  
*Tuning of vertically-aligned carbon nanotube diameter and areal density through catalyst pre-treatment*  
**Nano Letters** [11.2], P. 3587–3593, Vol. 8/11, Nov. 2008

## Submitted, under review or being revised for resubmission

68. M. Telkhozhayeva, R. Konar, R. Lavi, E. Teblum, B. Malik, S. Ruthstein, E. Moretti, **G.D. Nessim\***  
*Phase-Dependent Photocatalytic Activity of Bulk and Exfoliated Defect-Controlled Flakes of Layered Copper Sulfides under Simulated Solar Light*  
**ACS Sustainable Chemistry & Engineering**
69. R. Konar, B. Rajeswaran, H. Aviv, E. Teblum, **I. Grinberg\***, **Y.R. Tischler\***, and **G.D. Nessim\***  
*Enhanced Low-Frequency Raman Spectroscopy of Exfoliated Flakes of CVD-grown 2D Nanosheet-like Molybdenum di-Selenide (2H-MoSe<sub>2</sub>) Drop-casted on CaF<sub>2</sub> Substrates*  
**ACS Omega**
70. S. Majumder, B. Malik, R. Lorenzi, A. Paleari, I. Perelshtein, M. Ejgenberg, and **G.D. Nessim\***  
*Improved Electro Methanol Oxidation Reaction Activity at the Hybrid Surface Comprised of Oxidized Carbon Nanotubes (O-CNT) and Highly Branched Hematite (Fe<sub>2</sub>O<sub>3</sub>)*  
**Electrochimica Acta**
71. S. Majumder, B. Malik, and **G.D. Nessim\***  
*Tailoring the Surface Modification of Hematite (Fe<sub>2</sub>O<sub>3</sub>) By Pyrite (FeS<sub>2</sub>) Towards Electrocatalytic Water Oxidation*  
**ACS Inorganic Chemistry**
72. P. Shriber, M. Tkachev, A. Atkins, I. Perelshtein, S. Bretler, B. Schmerling, Y. Flegler, and **G.D. Nessim\***  
*Synthesis of Nickel Sulfide Dendrites from Nickel Foil Using Thermal Annealing*  
**Materialia**
73. P. Shriber, E. Shawat Avraham, B. Malik, E. Teblum, I. Perelshtein, Y. Gofer, M. Eigenberg, Y. Zubarev, P. Nagler, and **G.D. Nessim\***  
*Short-duration synthesis of single-phase bulk SnS using chemical vapor deposition and exfoliation of thin-layer flakes*  
(To resubmit)
74. M. Telkhozhayeva, B. Hirsch, R. Konar, E. Teblum, R. Lavi, S. Ruthstein, E. Moretti, **G.D. Nessim \***  
*2D Layered Semiconducting TiS<sub>2</sub> Flakes for Enhanced Photocatalysis under Simulated Solar Light*  
(to resubmit)

## In preparation

75. R. Konar, R. Tamari, E. Teblum, G.D. Nessim, **L. Meshi\***  
*In-Depth Characterization of Stacking Faults Forming During the Growth of Transition-Metal Dichalcogenides (TMDCs) by Ambient Pressure-CVD*

## PUBLICATIONS IN SCIENTIFIC BOOKS

1. G.D. Nessim, M. Seita  
*The role of cobalt in carbon nanotubes synthesis*, communication for the edited and peer-reviewed collection: “*Cobalt: Characteristics, Compounds, and Applications*”, **(invited)**, Editor: Lucas J. Vidmar, P. 203-213, **NOVA publishers**, September 2011
2. G.D. Nessim  
*Carbon Nanotubes for chip interconnection*, peer-reviewed article for the 2012 edition of the *Encyclopedia of Nanotechnology*, **(invited)**  
Editor: Bharat Bhushnan, **Springer**, August 2012
3. G.D. Nessim, C. Pint, A.J. Hart – book (invited)  
(invited by Springer after viewing Nanoscale review; content proposal submitted by G.D. Nessim was peer-reviewed and accepted in September 2010; C. Pint and A.J. Hart were added in March 2011)  
*Carbon nanotube synthesis and growth mechanisms: from the Lab to the Manufacturing Plant*.  
**Springer**, (currently on hold)
4. S. Das, K. Dutta, G.D. Nessim, and A. Kader – book chapter  
*Introduction to direct methanol fuel cells* (chapter 1, P.1–12)  
Book title *Direct methanol fuel cells* (Elsevier); Editor: K. Dutta; February 2020

## OTHER SCIENTIFIC PUBLICATIONS

1. **Materials Research Society, MRS Bulletin, Volume 39, February 2014**  
*Iron catalyst reservoir doubles CNT growth on alumina*

## REVIEWER

Nanoscale, MRS Proceedings, Carbon, Springer (books), Chemical Engineering Communications, Applied Surface Science, Journal of Physical Chemistry C, Particle Systems and Characterization, ACS Applied Materials and Interfaces, ACS Biomaterials, Chemistry of Materials, JACS, Microelectronics Engineering, etc.



## INVENTIONS AND PATENTS

### At BIU

1. Leonardo Ricotti, Cafarelli, Gilbert Daniel Nessim, Gina Lisignoli, Elena Gabusi, Milena Fini, Matilde Tschon, Alessandro Russo, Stefano Zaffagnini, Riccardo Meliconi, Aharon Wechsler, Erik Jean-Claude Dumont, Yirij Fedutik, Carsten Jost, Tomasz Gapinski, Krzysztof Stanislaw Lenartowicz, Pär Bergsten, ke Jernberger, Magnus Eriksson, Yonatan Shachaf, Lorenzo Vannozzi (Consortium Admaiora, EU grant)  
*Materiale e sistema per il trattamento terapeutico di articolazioni*  
25/2/2019, N. **102019000002697**
2. G.D. Nessim, D. Zitoun, Y. Kostikov, V. Shokhen, provisional patent  
*Scalable Silver-Based Catalyst for Highly Efficient Electrochemical Water Splitting*
3. G.D. Nessim, A. Itzhak, and E. Teblum, provisional patent  
*High yield synthesis of 2D monolayers of p-type copper sulfide using thermal annealing of bulk copper and sulfur gas*
4. G.D. Nessim and E. Shawat, provisional patent submitted on 16 July 2014 (Bar Ilan University)  
*Ultra high-yield one-step synthesis of conductive, and superhydrophobic three-dimensional mats of carbon nanofibers via full catalysis of unconstrained thin film*
5. G.D. Nessim, provisional patent submitted in June 2012 (Bar Ilan University)  
*Synthesis of highly conductive metal-CNT (carbon nanotube) wire*

### Prior to BIU

G.D. Nessim, provisional patent filed in 2003

*Collapsible, modular, and multi-functional personal transportation vehicle*

G.D. Nessim & S. Simnegar, provisional patent filed in 2001

*Portable projector*

G.D. Nessim & B. Mehlman, invention description provided to Otis Elevators in 1993

*Optoelectronic contacts for elevator hoistway and car doors*

G.D. Nessim & B. Beignet, invention description provided to Otis Elevators in 1993

*Self-adjusting and vertical moving brush for application on the I.R.V. door obstacle detector*

G.D. Nessim & G. Nivoix, filed by Otis Elevators in 1992 in France and USA

*Infrared obstacle detector for elevator doors*

## CONFERENCE PRESENTATIONS

1. *Invited speaker MRS Fall 2021; symposium: Advanced atomic layer deposition and chemical vapour deposition techniques and applications*  
MRS Fall Meeting (Nov. 28<sup>th</sup> – Dec. 3<sup>rd</sup>, 2021) in Boston (**invited**)
2. *High Yield, Bottom-Up/Top-Down Synthesis of 2D Layered Metal Sulfides, Phosphides, and Selenides Using Chemical Vapor Deposition with applications in electronics and electrochemistry*  
NanoIL, Jerusalem, 4-6 October, 2021 (**invited**)
3. *Towards the Growth of 3D Forests of Carbon Nanotubes—Selective Height Control Using Thin-Film Reservoirs and Overlayers*  
63<sup>rd</sup> Electronic Materials Conference (EMC, organized by MRS), 23/6/2021, online
4. *High Yield, Bottom-Up/Top-Down Synthesis of 2D Layered Metal Sulfides, Phosphides, and Selenides Using Chemical Vapor Deposition with applications in electronics and electrochemistry*  
63<sup>rd</sup> Electronic Materials Conference (EMC, organized by MRS), 23/6/2021, online
5. *High Yield, Bottom-Up/Top-Down CVD Synthesis of 2D Layered Metal Selenides—A Promising Class of Materials for Applications in Electronics and Electrochemistry*  
MRS Spring Conference, session NM07.14: Devices for Sensing, Energy Conversion, and QIS II  
April 20, 2021, online (**invited**)
6. *Chemical vapor deposition synthesis of bulk layered metal chalcogenides (sulfides, phosphides, and selenides) in high yield and their applications in electrochemistry*  
2DMAT2021, August 23-26, 2021, Paris, France – did not travel due to covid (**invited**)
7. *Spaghetti & Lasagne: the cooking of 1D and 2D nanomaterials*  
International Conference on Porous Materials for Energy and Environment  
12 March 2021, online (**keynote**)
8. *High Yield, Bottom-Up/Top-Down Synthesis of 2D Layered Metal Sulfides, Phosphides and Selenides Using Chemical Vapor Deposition with Applications in Electronics and Electrochemistry*  
MRS Fall Conference 2020, online (**keynote**)
9. *Spaghetti & Lasagne: the cooking of 1D and 2D nanomaterials*  
IVS – Italian Embassy in Israel, Israel-Italy workshop on nanomaterials for the future  
October 28, 2020, online (**invited**)
10. *Chemical vapor deposition synthesis of bulk layered metal chalcogenides (sulfides, phosphides, and selenides) in high yield and their applications in electrochemistry*  
The 85<sup>th</sup> Annual Meeting of the Israeli Chemical Society (ICS)  
February 19, 2020, Jerusalem
11. *Facile Synthesis of Non-Stoichiometric Modulated Copper Selenide (Cu<sub>2-x</sub>Se) Using Chemical Vapor Deposition for Electronic and Electrochemical Applications*  
MRS Fall Conference 2019  
3 December 2019, Boston
12. *Biomass Derived Hard Carbon as Sodium-Ion Battery Anode*  
MRS Fall Conference 2019  
2 December 2019, Boston
13. *Facile Synthesis of Nickel Sulfide Millimeter Long Nano-Arrows (Ni<sub>3</sub>S<sub>2</sub>) Using Chemical Vapor Deposition*  
MRS Fall Conference 2019  
2 December 2019, Boston

14. *High Yield, Bottom-Up Synthesis of Layered Metal Sulfides, Phosphides, and Selenides Using Thermal Annealing and Applications in Electronics and Electrochemistry (invited)*  
Bilateral workshop on nanomaterials organized by the Italian Embassy  
25 November 2019, Bar Ilan University
15. *High Yield, Bottom-Up Synthesis of Layered Metal Sulfides, Phosphides, and Selenides Using Thermal Annealing and Applications in Electronics and Electrochemistry*  
TechConnect World Innovation, June 17, 2019, Boston
16. *High Yield, Bottom-Up Synthesis of Layered Metal Sulfides, Phosphides, and Selenides Using Thermal Annealing and Applications in Electronics and Electrochemistry*  
The 84<sup>th</sup> Annual Meeting of the Israeli Chemical Society (ICS)  
February 13, 2019, Tel Aviv
17. *How the Microstructure of the Alumina Layer Can Lead to Full Growth Reproducibility of Millimeter-Tall Forests of Carbon Nanotubes (title updated to: Engineering of the layers below the catalyst to modulate CNT growth)*  
MRS Fall Conference 2018  
26 November 2018, Boston
18. *Transition from Chalcocite (Cu<sub>2</sub>S) to Digenite (Cu<sub>9</sub>S<sub>5</sub>)—Layered, Crystalline, P-Type Copper Sulfide by Thermal Annealing of Copper (not delivered due to schedule conflict)*  
MRS Fall Conference 2018  
25 November 2018, Boston
19. *High Yield, Bottom-Up Synthesis of Layered Metal Sulfides and Phosphides Using Thermal Annealing and Top-Down Exfoliation of Monolayers*  
36th IVS (Israel Vacuum Society) Annual Meeting  
Leonardo City Convention Center, September 6, 2018, Ramat Gan
20. *High Yield, Bottom-Up Synthesis of Layered Metal Sulfides and Phosphides Using Thermal Annealing and Top-Down Exfoliation of Monolayers (invited)*  
IICHE 53 Conference (Israel Institute of Chemical Engineers)  
June 24, 2018, Tel Aviv
21. *Spaghetti & Lasagne - synthesis of 1D and 2D nanomaterials*  
24th World Nano Conference, May 8<sup>th</sup> 2018, Roma (Italia)
22. *Towards the growth of 3D forests of carbon nanotubes: selective height control using reservoirs and overlayers (invited)*  
IMEC, The 18<sup>th</sup> Israel Materials Engineering Conference, February 6-8, 2018, Dead Sea, Israel
23. *Patterned Growth of 3D Forests of Carbon Nanotubes Using Reservoirs and Overlayers (invited)*  
2017 MRS Fall Meeting & Exhibit, November 27, 2017, Boston, USA
24. *Patterned Growth of 3D Forests of Carbon Nanotubes Using Reservoirs and Overlayers*  
35th IVS (Israel Vacuum Society) Annual Meeting, Weizmann Institute of Science, September 10, 2017, Rehovot
25. *Towards the growth of 3D forests of carbon nanotubes: selective height control using reservoirs and overlayers (keynote)*  
International Conference on Diamond and Carbon Materials Conference & Graphene and Semiconductors, July 17-18, 2017, Chicago, USA
26. *Towards the growth of 3D forests of carbon nanotubes: selective height control using reservoirs and overlayers (keynote)*  
9<sup>th</sup> World Congress on Materials Science and Engineering, June 12-14, 2017, Roma, Italia

27. *Morphological Transitions in Organometallic Complexes—Inducing Porosity and Growing Carbon Nanofibers Using Chemical Vapor Deposition*  
2016 MRS Fall Meeting & Exhibit, November 29, 2016, Boston, USA
28. *Lessons learned from carbon nanotube growth can be applied to graphene: 100% reproducibility and improved graphene quality by preheating precursor gases using thermal chemical vapor deposition*  
27th International Conference on Diamond and Carbon Materials; 7 September 2016, Le Corum, Montpellier, France
29. *Lessons learned from carbon nanotube growth can be applied to graphene: 100% reproducibility and improved graphene quality by preheating precursor gases using thermal chemical vapor deposition*  
CIMTEC 2016, June 8, 2016, Perugia, Italia
30. *Lessons Learned from Carbon Nanotube Growth Can be Applied to Graphene: 100% Reproducibility and Improved Graphene Quality by Preheating Precursor Gases Using Thermal Chemical Vapor Deposition (invited)*  
Nano Israel 2016, the 5<sup>th</sup> International Nanotechnology Conference and Exhibition, February 22, 2016, Tel Aviv
31. *Lessons Learned from Carbon Nanotube Growth Can be Applied to Graphene: 100% Reproducibility and Improved Graphene Quality by Preheating Precursor Gases Using Thermal Chemical Vapor Deposition*  
IMEC 17, The 17<sup>th</sup> Israel Materials Engineering Conference, February 1, 2016, Wohl Center, Bar Ilan University, Ramat Gan
32. *Lessons Learned from Carbon Nanotube Growth Can be Applied to Graphene: 100% Reproducibility and Improved Graphene Quality by Preheating Precursor Gases Using Thermal Chemical Vapor Deposition (invited)*  
Israeli Polymers and Plastics Society (IPPS), 44<sup>th</sup> Conference, December 13, 2015, Jerusalem
33. *Lessons Learned from Carbon Nanotube Growth Can be Applied to Graphene: 100% Reproducibility and Improved Graphene Quality by Preheating Precursor Gases Using Thermal Chemical Vapor Deposition (invited)*  
MRS Fall Conference 2015, December 3, 2015, Boston
34. *100% Reproducibility and Improved Graphene Quality at Low Temperature by Preheating Precursor Gases Using Thermal Chemical Vapor Deposition*  
Flatlands Beyond Graphene 2015  
July 9, 2015, Bar Ilan University, Ramat Gan
35. *Synthesis of Carbon Nanostructures (CNTs, CNFs, Graphene): Science and Applications (invited)*  
IICHE 50 Conference (Israel Institute of Chemical Engineers)  
February 26, 2015, Tel Aviv
36. *Synthesis of Carbon Nanostructures (CNTs, CNFs, Graphene): Science and Applications (invited)*  
The 80<sup>th</sup> Annual Meeting of the Israeli Chemical Society (ICS)  
February 17, 2015, Tel Aviv
37. *Synthesis of Carbon Nanostructures: Science and Applications to Energy Devices (invited)*  
MRS Fall Conference 2014, December 2, 2014, Boston
38. *Synthesis of carbon nanostructures: science and applications to energy devices*  
32<sup>nd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS),  
September 8, 2014, Air Force House, Herzlia
39. *Synthesis of carbon nanostructures: science and applications to energy devices*  
ICN+T, International Conference on Nanoscience + Technology, July 20-25, 2014, Vail, Colorado

40. *Synthesis of carbon nanostructures: science and applications to energy devices*  
TechConnect World, Summit & Innovation Showcase 2014, June 15-19, 2014, Washington D.C.  
**(invited)**
41. *Synthesis of carbon nanostructures: science and applications to energy devices*  
New Diamond and Nano Carbons Conference (NDNC 2014), May 28, 2014, Chicago – *abstract accepted for presentation but declined participation due to schedule conflict*
42. *Synthesis of carbon nanostructures (CNTs, CNFs, graphene): mechanisms and applications to batteries and supercapacitors*  
Nano Israel 2016, the 4<sup>th</sup> International Nanotechnology Conference and Exhibition, March 24-25, 2014, Tel Aviv **(invited)**
43. *Synthesis of carbon nanostructures: science and applications to energy devices*  
IMEC, The 16<sup>th</sup> Israel Materials Engineering Conference, February 24, 2014, Haifa **(invited)**
44. *Carbon nanotubes: The science behind the synthesis*  
IMEC, The 15<sup>th</sup> Israel Materials Engineering Conference, February 29, 2012, Dead Sea, Israel **(keynote speaker)**
45. *Ultra Fast Elemental Synthesis of High Yield Copper Chevrel Phase with High Electrochemical Performance*  
MRS Fall Conference 2012, November 28, 2012, Boston
46. *Decrypting the Role of Catalyst Oxidation State in the Synthesis of Vertically Aligned Carbon Nanotubes*  
MRS Fall Conference 2012, November 26, 2012, Boston
47. *Designing a Catalyst Reservoir to Improve Synthesis of Vertically Aligned Carbon Nanotubes*  
MRS Fall Conference 2012, November 26, 2012, Boston
48. *Advanced materials –high-yield synthesis of "floating" three-dimensional Carbon nanofibers mats using controllable substrate-catalyst detachment*  
30<sup>th</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS), October 15, 2012, Air Force House, Herzlia
49. *Easily controllable growth of millimeter-tall carbon nanotube carpets by in situ formation of water from added oxygen gas*  
MRS Fall Conference 2011, November 29, 2011, Boston
50. *Forecast of carbon nanotubes for addressing future solutions for chip-to-chip interconnects*  
2011 IEEE Compound Semiconductor IC, Symposium Panel on Chip-to-Chip Interconnects.  
October 16-19, 2011, Hawaii's Big Island **(invited)** – *declined participation due to schedule conflict*
51. *The Issue of Control in Carbon Nanotube Synthesis: Insights on the Role of Catalyst, Underlayer, and Precursor Gases*  
29<sup>th</sup> IVS Annual Conference and Technical Workshop, Air Force House, June 6, 2011, Herzlia **(invited)**
52. *The issue of control in carbon nanotube synthesis: insights on the role of the catalyst, underlayer, and precursor gases*  
Special seminar from the Israel Vacuum Society (IVS) entitled “Carbon nanostructures: from fundamentals to applications”, Technion (Israel Institute of Technology), January 13, 2011, Haifa **(invited)**
53. *Control of source gases and underlayer for low-temperature synthesis of dense carpets of vertically aligned carbon nanotubes on metallic substrates for interconnect applications*  
Materials Research Society (MRS), Fall Conference 2009, December 2, 2009, Boston

54. *Carbon nanotube growth on conductive substrates for interconnect applications*  
Materials Research Society (MRS), Fall Conference 2007, November 26, 2007, Boston
55. *Tuning of vertically-aligned carbon nanotube length, number of walls, and areal density through catalyst pre-treatments*  
Materials Research Society (MRS), Fall Conference 2007, November 26, 2007, Boston
56. *Carbon nanotube growth on conductive substrates into periodic scaffold for interconnect applications*  
TechCon FCRP (SRC conference), September 9, 2007, Austin, Texas **(invited)**

## CONFERENCE PRESENTATIONS DELIVERED BY STUDENTS IN MY GROUP OR BY JOINT RESEARCH COLLABORATORS

1. *Scalable Synthesis of Few-Layered 2D Tungsten Di-Selenide (2H-WSe<sub>2</sub>) Nanosheets Directly Grown on Tungsten (W) Foil Using Ambient Pressure Chemical Vapor Deposition for Reversible Li-Ion Storage*  
63<sup>rd</sup> Electronic Materials Conference, 23/6/2021, online (talk delivered by Rajashree Konar)
2. *Facile and Scalable Ambient Pressure Chemical Vapor Deposition-Assisted Synthesis of Layered Silver Selenide ( $\beta$ -Ag<sub>2</sub>Se) on Ag Foil as an Oxygen Reduction Catalyst in Alkaline Medium*  
63<sup>rd</sup> Electronic Materials Conference, 23/6/2021, online (talk delivered by Rajashree Konar)
3. *Higher Ultrasonic Frequency Liquid Phase Exfoliation Leads to Larger and Monolayer to Few-Layer Flakes of 2D Layered Materials*  
63<sup>rd</sup> Electronic Materials Conference, 23/6/2021, online (talk delivered by Madina Telkhozhayeva)
4. *Scalable Synthesis of Few-Layered 2D Tungsten Di-Selenide (2H-WSe<sub>2</sub>) Nanosheets Directly Grown on Tungsten (W) Foil Using Ambient Pressure Chemical Vapor Deposition for Reversible Li-Ion Storage*  
MRS Fall Conference 2020, online (talk delivered by Rajashree Konar)
5. *Facile and Scalable Ambient Pressure Chemical Vapor Deposition-Assisted Synthesis of Layered Silver Selenide ( $\beta$ -Ag<sub>2</sub>Se) on Ag Foil as an Oxygen Reduction Catalyst in Alkaline Medium*  
MRS Fall Conference 2020, online (talk delivered by Rajashree Konar)
6. *Carbon Nanotube Reinforced Structural Composite Supercapacitors*  
231<sup>st</sup> ECS (ElectroChemical Society), May 29-June 2, 2016, San Diego, CA (talk delivered by Andrew Westover)
7. *Facile Synthesis of Large Samples of Layered Crystalline Copper Sulfide Using Chemical Vapor Deposition (CVD)* (talk delivered by Anat Itzhak)  
2016 MRS Fall Meeting & Exhibit, November 29, 2016, Boston, USA
8. *First-Principles Investigations of the Synthesis of Black Phosphorus* (talk delivered by Pola Schriber)  
2016 MRS Fall Meeting & Exhibit, November 28, 2016, Boston, USA
9. *Molecular vibration polaritons in low-loss dielectric microcavities in the mid-infrared* (talk delivered by Merav Muallem)  
61<sup>st</sup> Annual Meeting of the Israel Physical Society (IPS), December 13, 2015, Ramat Gan
10. *High-Yield Synthesis of "Floating" Three-Dimensional Carbon Nanofiber Mats Using Controllable Substrate-Catalyst Detachment* (talk delivered by Efrat Shawat Avraham)  
MRS Fall Conference 2015, December 3, 2015, Boston
11. *Catalyst Reservoirs to Enhance or Inhibit Carbon Nanotube Growth* (talk delivered by Efrat Shawat Avraham)  
MRS Fall Conference 2015, December 3, 2015, Boston
12. *Effect of Overlayers on the Growth of Carbon Nanotube Forest* (talk delivered by Merav Muallem)  
MRS Fall Conference 2015, December 3, 2015, Boston
13. *Over 3× Taller Carpets of Carbon Nanotubes by Decoupled Preheating of Hydrocarbons and of Water Formation Using a Multi-System of Thermal Chemical Vapor Deposition* (talk delivered by Dr. Eti Teblum)  
MRS Fall Conference 2015, November 30, 2015, Boston
14. *The synthesis of "holey carpet" of carbon nanofibers using chemical vapor deposition (invited talk, delivered by Efrat Shawat Avraham)*  
Third China-Israel meeting on Nanoscience and Nanotechnology, 31 August – 2 September 2015, Kaifeng, China

15. *Room temperature fabrication of dielectric Bragg reflectors composed of a CaF<sub>2</sub>/ZnS multilayered* (talk delivered by Merav Muallem)  
32<sup>nd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS),  
September 8, 2014, Air Force House, Herzlia
16. *The synthesis of “holey carpets” of CNT by using CVD method* (talk delivered by Efrat Shawat)  
32<sup>nd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS),  
September 8, 2014, Air Force House, Herzlia
17. *Synthesis of Dense Carbon Nanotube Carpets with Uniform Distribution of Holes Using Thermal Chemical Vapor Deposition* (talk delivered by Efrat Shawat)  
MRS Fall Conference 2013, December 2, 2013, Boston (USA)
18. *The issue of control in carbon nanotube synthesis: insights on the role of the catalyst, underlayer, and precursor gases* (talk delivered by Dr. Eti Teblum)  
31<sup>st</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS),  
September 30, 2013, Air Force House, Herzlia
19. *Control of Carbon Nanotube Size and Structure by Precursor Gas Chemistry* (presented by E. Meshot)  
Materials Research Society (MRS), Fall Conference 2010, November 30, 2010, Boston



## CONFERENCE MANAGEMENT PARTICIPATIONS

1. Project manager, logistics manager, and CFO of the most profitable international conference of the Product Development and Management Association (PDMA), 1999, Marco Island, Florida, US
2. Chair of session: “*Nanochemistry and Materials II*”  
The 79<sup>th</sup> International Conference of the Israel Chemical Society (ICS), February 5, 2014, Tel Aviv
3. Co-chair of session: “*Materials for Energy*”  
IMEC, The 16<sup>th</sup> Israel Materials Engineering Conference, February 24, 2014, Haifa
4. Conference organizer: *Carbon nanotubes: scientific background and prospects for industrial applications*, Bar Ilan University, November 13, 2014, Ramat Gan
5. Co-chair of session MM: *Carbon Nanotubes—Synthesis, Properties, Functionalization and Applications; panel MM5: Characterization and Interaction of Carbon Nanotubes*, MRS Fall Conference 2014, December 2, 2014, Boston
6. Organizer of session IIb, *Low dimensional structures*,  
IVS 2015: 33<sup>rd</sup> IVS Conference at the Weizmann Institute of Science, 9 September 2015
7. Session Chair, symposium NM03.01, *Synthesis and Fabrication I*, MRS Fall Conference 2017, November 27, 2017, Boston.
8. Session Chair: T3 Nanotechnology, *The 83<sup>rd</sup> Annual Meeting of the Israel Chemical Society, Tel Aviv, February 13-14, 2018*
9. President Israel Vacuum Society since March 2020
  - a. Led the preparation of the IVS-MRS student conference (July 20, 2020): up to 90 participants (online, zoom)
  - b. Led the preparation of the IVS – Italian Embassy in Israel, Israel-Italy workshop on nanomaterials for the future, October 28, 2020: up to 160 participants (online, zoom)
  - c. Lead the preparation of the IVS annual conference, December 13, 2020: almost 200 participants (online, zoom)

## INVITED PROFESSOR

1. *Delivered a 1-week course at the Università’ di Bergamo as invited professor*  
***Case studies in 1D and 2D nanostructure synthesis with key concepts of kinetic processes in materials***  
*19-22 February 2018, Bergamo, Italia*
2. *Delivered a 1-week course at the Università’ di Bergamo as invited professor*  
***Case studies in 1D and 2D nanostructure synthesis with key concepts of kinetic processes in materials***  
*24-27 February 2019, Bergamo, Italia*

## UNIVERSITY, INDUSTRY, AND CONSORTIUM PRESENTATIONS

1. *Towards the growth of 3D forests of carbon nanotubes: selective height control using reservoirs and overlayers*  
April 4<sup>th</sup>, 2019, Ben Gurion, University of the Negev **(invited)**
2. *Insights in the synthesis of 1D and 2D nanostructures*  
March 27<sup>th</sup>, 2019, Ariel University **(invited)**
3. *Spaghetti & Lasagne: Synthesis of 1D and 2D nanomaterials*  
May 9, 2018, Università di Brescia **(invited)**
4. *Spaghetti & Lasagne: Synthesis of 1D and 2D nanomaterials*  
May 7, 2018, Università di Roma, Tor Vergata, Roma **(invited)**
5. *Spaghetti & Lasagne – The cooking of 1D and 2D nanomaterials*  
BINA Annual Internal Conference (Bar Ilan Institute for Nanotechnology and Advanced Materials), Neve Ilan, Feb 11–12, 2018
6. *Synthesis of 1D and 2D nanostructures for batteries, supercapacitors, and fuel cells*  
INREP Energy Conference, Bar Ilan University, 9-10 May, 2017
7. *Synthesis of 2D layered materials: graphene, TMDCs, & more*  
April 6, 2017, Ca' Foscari, Venezia **(invited)**
8. *Synthesis of 2D layered materials: graphene, TMDCs, & more*  
April 5, 2017, Università di Verona **(invited)**
9. *Synthesis of 2D layered materials: graphene, TMDCs, & more*  
Colloquium, January 30, 2017, Chemistry dept., Bar Ilan University **(invited)**
10. *Nanostructures: synthesis, properties, applications, and prospects*  
*Part 1: carbon nanotubes and nanofibers*  
January 16, 2017, Ca' Foscari, Venezia **(invited)**
11. *Nanostructures: synthesis, properties, applications, and prospects*  
*Part 1: carbon nanotubes and nanofibers*  
January 11, 2017, Università di Verona **(invited)**
12. *Synthesis of 1D and 2D nanomaterials: CNTs, CNFs, graphene, TMDs, & more*  
INREP Annual Meeting, January 1, 2017, Bar Ilan University
13. *Synthesis of 2D layered materials: graphene, TMDCs, & more*  
November 25, 2016, short course organized by PoliFab, Politecnico di Milano **(invited)**
14. *Nanostructures: synthesis, properties, applications, and prospects;*  
*Part 1: carbon nanotubes and nanofibers*  
September 8, 2016, Electronics (PoliFab) department, Politecnico di Milano **(invited)**
15. *Carbon and non-carbon nanostructures: synthesis, properties, applications, and prospects*  
November 26, 2015, Physics department, Politecnico di Milano **(invited)**
16. *Synthesis of carbon nanostructures: science and applications to energy devices*  
December 9, 2014, Chemistry department, Politecnico di Milano **(invited)**
17. *Insights into the Science of Synthesizing Carbon Nanostructures and Applications to Energy Devices*  
Colloquium, April 3, 2014, Technion, Haifa **(invited)**
18. *Millimeter-Tall Carpets of Vertically Aligned Crystalline Carbon Nanotubes Synthesized on Copper Substrates for Electrical Applications (talk delivered by Dr. Eti Teblum)*

- INREP Annual Meeting, September 10, 2013, Bar Ilan University
19. What is below the support layer affects carbon nanotube growth: an iron catalyst reservoir yields taller nanotube carpets (*talk delivered by Efrat Shawat*)  
INREP Annual Meeting, September 10, 2013, Bar Ilan University
  20. *Carbon nanotubes and graphene: Science and Electrochemical Applications*  
Colloquium, June 5, 2013, Tel Aviv University **(invited)**
  21. *Advanced materials –high-yield synthesis of "floating" three-dimensional Carbon nanofibers mats using controllable substrate-catalyst detachment* (*talk delivered by Efrat Shawat*)  
BINA Nanotechnology Conference, January 23-24, 2013, Bar Ilan University in Tzfat
  22. *Carbon nanotubes: magic material for the future?*  
Special seminar, March 9, 2010, Machon Lev (Jerusalem College of Technology) **(invited)**
  23. *Role of gas pretreatment and underlayer in the synthesis of vertically aligned carpets of carbon nanotubes for interconnect applications*  
Microsystems Technology Laboratories (MIT) annual conference, Cambridge, MA, January 27-28, 2010, MIT  
**Award winner presentation of "Nanotechnology" session (\$200 prize)**
  24. *Carbon nanotubes: magic material for the future?*  
*Insights into the science and challenges of carbon nanotubes synthesis and its applications to*  
Special seminar sponsored by the Chemistry department, August 24, 2009, Bar Ilan University **(invited)**
  25. *CMOS-compatible growth of carbon nanotubes for I.C. interconnects*  
Microsystems Technology Laboratories (MIT) annual conference, January 28-29, 2009, Waterville Valley, NH
  26. *Carbon nanotubes for interconnect vias in integrated circuits*  
First Mini Workshop on Nanomaterials for Nanotechnology, September 24, 2008, MIT – Tohoku University **(invited)**
  27. *Multi-wall carbon nanotubes for I.C. interconnect vias*  
Intel Corporation, Hillsboro, Oregon, May 27, 2008 **(invited)**
  28. *Carbon nanotubes for interconnects and devices*  
GML Symposium, February 15, 2008, Northeastern University
  29. *Carbon nanotubes for interconnects and devices*  
Northeastern Seminar Speakers (Northeastern University), January 31, 2008, Northeastern University **(invited)**
  30. *Carbon nanotubes for interconnects and devices*  
6-Insights (Electrical Engineering Department, MIT), February 19, 2008, MIT **(invited)**
  31. *Carbon nanotubes for I.C. interconnects*  
Microsystems Technology Laboratories (MIT) annual conference, January 24-25, 2008, Waterville Valley, NH
  32. *Carbon nanotube growth for integrated circuits interconnects and devices*  
Small Talks, November 7, 2007, MIT **(invited)**
  33. *Carbon nanotube growth for interconnects*  
Microsystems Technology Laboratories (MITL, MIT) annual conference, January 25-26, 2007, Waterville Valley, NH – **Award winner presentation of "Molecular and Nanotechnology" session (\$150 prize)**

## CONFERENCE POSTERS

1. A. Westover, (Oakridge lab), E. Teblum, D. Schauben (Vanderbilt), A. Yitzhak, N. Muralidharan (Vanderbilt), M. Muallem, G.D. Nessim, and C.L. Pint (Vanderbilt)  
Carbon nanotube reinforced structural composite supercapacitors  
231<sup>st</sup> ECS meeting, May 28 – June 1 2017, New Orleans (USA)
2. T. Sharabani, H. Alon, D. Fixler, D. Naveh, and G.D. Nessim  
*Synthesis of Size-Controlled Au@Graphene Core-Shell Nanoclusters for Theranostic Applications using CVD*  
2017 BINA Conference, Ein Gedi, Israel = **Winner of best poster**
3. E. Shawat Avraham, L. Shani, V. Mor, O. Girshevitz, A. Westover, C.L. Pint, G.D. Nessim  
*Thin Film Metal Reservoirs as Growth Inhibitor/Enhancers to Modulate the Height of Carbon Nanotubes Forests*  
2016 MRS Fall Meeting & Exhibit, November 27, 2016, Boston, USA
4. M. Muallem, A. Palatnik, G.D. Nessim and Y. R. Tischler  
*Strong light-matter coupling in the mid-IR, using dipole allowed organic vibronic transitions*  
2015 MRS Fall Meeting & Exhibit, December 1, 2015, Boston, USA
5. M. Muallem, A. Palatnik, G.D. Nessim and Y. R. Tischler  
*Strong light-matter coupling exhibited in mid-IR FTIR measurements of a PMMA film situated inside a resonantly tuned microcavity*  
International Conference on advanced Vibrational Spectroscopy (ICAVS 8), July 14, 2015, Vienna, Austria
6. E. Teblum, A. Itzhak, R. Yemini, M. Chababo, E. Shawat-Avraham, M. Muallem, and G. D. Nessim  
*Over 3× Taller Carpets of Carbon Nanotubes by Decoupled Preheating of Hydrocarbons and of Water Formation Using a Multi-System of Thermal Chemical Vapor Deposition*  
33<sup>rd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS), September 9, 2015, Weizmann Institute of Technology, Rehovot
7. E. Shawat, Mor V., Y. Fleger, L. Oakes, C.L. Pint, and G.D. Nessim  
*What is below the support layer affects carbon nanotube growth: an iron catalyst reservoir yields taller nanotube carpets*  
33<sup>rd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS), September 9, 2015, Weizmann Institute of Technology, Rehovot
8. E. Shawat, Mor V., Y. Fleger, L. Oakes, C.L. Pint, and G.D. Nessim  
*What is below the support layer affects carbon nanotube growth: an iron catalyst reservoir yields taller nanotube carpets*  
The 80<sup>th</sup> annual meeting of the Israel chemical society (ICS), February 17-18, 2015, David Intercontinental Hotel, Tel-Aviv, Israel
9. E. Shawat, Mor V., Y. Fleger, L. Oakes, C.L. Pint, and G.D. Nessim  
*What is below the support layer affects carbon nanotube growth: an iron catalyst reservoir yields taller nanotube carpets*  
32<sup>nd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS), September 8, 2014, Air Force House, Herzlia
10. E. Teblum, M. Noked, A. Kerman, M. Muallem, Y.R. Tischler, D. Aurbach, and G.D. Nessim  
*Millimeter-Tall Carpets of Vertically Aligned Crystalline Carbon Nanotubes Synthesized on Copper Substrates for Electrical Applications*  
32<sup>nd</sup> IVS (Israel Vacuum Society) Annual Conference and Technical Workshop program (IVS), September 8, 2014, Air Force House, Herzlia

11. M. Muallem, A. Palatnik, G.D. Nessim, and Y.R. Tischler, D. Aurbach, and G.D. Nessim  
*Fabrication and Characterization of dielectric bragg reflectors composed of a CaF<sub>2</sub>/ZnS multilayered coating*  
4<sup>th</sup> NanoIsrael Conference, March 24-25, 2014, Tel Aviv
12. Y. Miroshnikov, G.A. Grinbom, G. Gershinsky, L. Stram, G.D. Nessim, D. Zitoun  
*Reduced graphene oxide silicon composite for lithium ion batteries*  
4<sup>th</sup> NanoIsrael Conference, March 24-25, 2014, Tel Aviv
13. E. Teblum, M. Noked, A. Kremen, M. Muallem, Y.R. Tischler, D. Aurbach, and G.D. Nessim  
*Millimeter-tall carpets of vertically aligned crystalline carbon nanotubes synthesized on copper substrates for electrical applications*  
4<sup>th</sup> NanoIsrael Conference, March 24-25, 2014, Tel Aviv
14. O. Mero, S. Margel, E. Shawat, G.D. Nessim, and J. Grinblat  
*Air-stable nanogranular Fe thin films formed by Chemical Vapor Deposition of triiron dodecacarbonyl as catalysts for carbon nanotube growth*  
4<sup>th</sup> NanoIsrael Conference, March 24-25, 2014, Tel Aviv
15. E. Teblum, M. Noked, A. Kremen, M. Muallem, Y.R. Tischler, D. Aurbach, and G.D. Nessim  
*Millimeter-tall carpets of vertically aligned crystalline carbon nanotubes synthesized on copper substrates for electrical applications*  
IMEC, The 16th Israel Materials Engineering Conference, February 24, 2014, Haifa
16. A. Cohen, A. Schechter, H. Teller, G.D. Nessim, E. Teblum  
*Oxygen reduction on N-CNT for metal-air batteries and fuel cells*  
IMEC, The 16th Israel Materials Engineering Conference, February 24, 2014, Haifa
17. J. Barzola-Quiquia, Manuel Lindel, M. Muallem, Gilbert D. Nessim, Pablo Esquinazi  
*Unusual Hysteresis Observed in the Magnetoresistance of Multiwall Carbon Nanotubes Bundles DPG-Dresden (Germany) 2014*
18. E. Teblum, M. Noked, A. Kremen, M. Muallem, Y. Tischler, D. Aurbach, and G.D. Nessim  
*Millimeter-tall carpets of vertically aligned crystalline carbon nanotubes synthesized on copper substrates for electrical applications*  
MRS Fall conference 2013, December 4, 2013, Boston
19. E. Shawat, O. Fleker, L. Benisvy, C.L. Pint (Intel), and G.D. Nessim  
*Facile synthesis to control pore size and distribution from inorganic nanoparticles using chemical vapor deposition*  
MRS Fall conference 2013, December 2, 2013, Boston
20. E. Shawat, Y. Fleger, C.L. Pint (Intel), and G.D. Nessim  
*Catalyst reservoir for synthesis of taller carpets of crystalline and vertically aligned carbon nanotubes*  
NanoIsrael 2012, March 26-27, 2012, Tel-Aviv
21. E. Teblum, Y. Gofer, C.L. Pint, and G.D. Nessim  
*Decrypting the role of catalyst oxidation state in synthesis of vertically aligned carbon nanotubes.*  
NanoIsrael 2012, March 26-27, 2012, Tel-Aviv
22. M. Noked, N. Leifer, T. Zimrin, G.D. Nessim, and D. Aurbach  
*A Straightforward and Reliable Method for the Characterization of Carbon Nanotube Dispersions*  
76<sup>th</sup> Meeting of the Israeli Chemical Society, February 10, 2011, Tel Aviv
23. T. Zimrin, R. Shapira, G.D. Nessim, Y. Ashkenazy, J.P. Lellouche, and D. Aurbach  
*Dispersion of CNTs by High Power Sonication – A Mechanism for the Prevention of their Cleavage*  
76<sup>th</sup> Meeting of the Israeli Chemical Society, February 10, 2011, Tel Aviv

24. T. Zimrin, Y. Ashkenazy, G.D. Nessim, D. Goldman, J.P. Lellouche, and D. Aurbach  
*A Simple Method to Assess the Quality of Highly Crystalline Carbon Nanotubes*  
76<sup>th</sup> Meeting of the Israeli Chemical Society, February 10, 2011, Tel Aviv
25. T. Zimrin, R. Shapira, G.D. Nessim, M. Noked, and D. Aurbach  
*Scalable growth of CNTs on conductive substrates and unique geometries*  
NanoIsrael 2010, November 9, 2010, Tel Aviv
26. G.D. Nessim, J. Oh, R. Mitchell, M. Seita, N. Abate, Y. Pin, P. Delcroix, K.P. O'Brien, and C.V. Thompson  
*Low temperature growth of carbon nanotubes in insulating scaffolds for future I.C. interconnects*  
Materials day 2008, Materials Processing Center, Cambridge (MIT), October 2008, Boston
27. G.D. Nessim, J. Oh, R. Mitchell, M. Seita, N. Abate, Y. Pin, P. Delcroix, K.P. O'Brien, and C.V. Thompson  
*Low temperature growth of carbon nanotubes in insulating scaffolds for future I.C. interconnects*  
Interconnect Focus Center, Program Annual Review, October 2008, Atlanta
28. G.D. Nessim, J. Oh, M. Seita, N. Abate, K.P. O'Brien (Intel), and C.V. Thompson  
*Carbon nanotubes in scaffold for electrical characterization*  
Interconnect Focus Center, Program Annual Review, October 2007, Atlanta
29. A.J. Hart, G.D. Nessim, J.S. Kim, D. Acquaviva, J. Oh, C.D. Morgan, M. Seita, J.S. Leib, and C.V. Thompson  
*Tuning the diameter and areal density of aligned CNTs by engineered pre-treatment of the catalyst film*  
NT 07, 8th International Conference on the Science and Application of Nanotubes, 2007, Ouro Preto, Brazil
30. G.D. Nessim, J. Oh, C.V. Thompson  
*Carbon nanotubes in ordered scaffolds: research on process optimization for interconnect applications*  
Interconnect Focus Center, Carbon nanotube conference (MIT), December 2006, Cambridge
31. J. Oh, G.D. Nessim, and C.V. Thompson  
*Porous alumina scaffold for 3-D carbon nanotube interconnects*  
Interconnect Focus Center, Program Annual Review, October 2006, Atlanta
32. G.D. Nessim, J. Oh, and C.V. Thompson  
*Carbon nanotubes in ordered scaffolds: research on process optimization for interconnect application*  
Interconnect Focus Center, Program Annual Review, November 2005, Atlanta

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