

Date: June 8, 2020

## **RESUME**

### **1. PERSONAL DETAILS**

Full Name: Amnon Stanger

Identity No: 053409959

Date and place of birth (optional): May 2, 1955, Haifa, Israel

Marital status (optional): Married + 3

Phone numbers: office: +972-4-829-3944; home: +972-4-833-1257; mobile: +972-52-349-8196

E-mail: stanger@technion.ac.il

### **2. ACADEMIC DEGREES**

D. Sc. 1985, Technion, Haifa, Israel, with Professor Y. Apeloig

B.Sc. 1980, Chemistry, Hebrew University, Jerusalem, Israel (with distinction).

### **3. ACADEMIC APPOINTMENTS**

Associate Professor	10/1999 – present, Technion, Haifa, Israel
Visiting Professor	8/2010 – 8/2011, Boston College, Boston, USA
Visiting Professor	8/2002 – 8/2003, Free University, Berlin, Germany
Senior Lecturer	5/1997 – 9/1999, Technion, Haifa, Israel
Lecturer	10/1992 – 5/1997, Technion, Haifa, Israel
Research Assistant with Teaching Permission	10/1998 – 9/1992, Technion, Haifa, Israel
Visiting Lecturer	1988, University of California, Berkeley, USA
Post Doctoral Fellow	12/1985 – 9/1998, University of California, Berkeley, with Professor K. Peter C. Vollhardt
Teaching Instructor	1982 – 1985, Technion, Haifa, Israel
Teaching Assistant	1980 – 1982, Technion, Haifa, Israel
Research Assistant	1980 – 1985, Technion, Haifa, Israel

### **4. PROFESSIONAL EXPERIENCE (outside academia)**

NA

### **5. RESEARCH INTERESTS (briefly)**

Organic and organometallic chemistry. The interplay between strain and aromaticity. Development and application of synthetic methods based on organometallic mediators and catalysts. Computational organic and organometallic chemistry (mainly ab initio and DFT calculations). Physical organic and physical organometallic chemistry. Development of NICS-based methods for quantitative assessment of diatropic and

paratropic ring current and aromaticity. Application of these methods for investigation of aromaticity-related issues.

## **6. TEACHING EXPERIENCE**

Organic chemistry 1m	undergraduate	chemistry majors
Organic chemistry	undergraduate	Bio-related majors
General chemistry	undergraduate	general non-chemistry majors
Fundamental chemistry A	undergraduate	chemistry majors
MO in organic chemistry	graduate/undergraduates	develop/teach
Physical organic chemistry	undergraduate	Boston college-develop/teach
Advanced organic lab	undergraduate	chemistry majors,
develop/supervise		
Aromaticity module in advanced organic chemistry course	graduate and undergraduate	develop/teach

## **7. TECHNION ACTIVITIES**

1998 – 2002, 2003 – 2010, 2011 – present In charge of hazardous materials disposal for the entire Technion

2010 Member of the Technion committee for graduate degrees.

## **8. DEPARTMENTAL ACTIVITIES**

1996 – 1998 Organizer of the organic seminars at the department of chemistry

1998 – 2002, 2003 – 2010, 2011 – present In charge of safety of the department of chemistry at the Technion

2001 – 2002 In charge on the glass blowing shop

2005 – 2007 Member of departmental graduate and undergraduate teaching committee

2008 – 2009 Vice dean for teaching affairs

2013 – 2015 In charge of the organic-inorganic chemistry division

## **9. PUBLIC PROFESSIONAL ACTIVITIES**

1997 – 2017 Member of the Lise-Meitner-Minerva Center for computational quantum chemistry

- 1999 – 2005 Member of the Institute of Catalysis Science and Technology, Technion
- 2007- present Member of the international committee of the International Symposium of Novel Aromatic Compounds (ISNA),
- 2009- present Member of the international committee of the European Symposium of Organic Reactivity (ESOR)
- 2010 Editor of the ESOR XII special issue of *The journal of physical Organic Chemistry*.

## **10. MEMBERSHIP IN PROFESSIONAL SOCIETIES**

Israel Chemical Society

## **11. FELLOWSHIPS, AWARDS AND HONORS**

- 1979 Amos De-Shalit scholarship for distinguished undergraduate student
- 1984 Gutwirth scholarship of distinguished graduate student
- 1985 - 1987 Chaim Weizmann Post-doctoral fellowship
- 2009 Schulich Award for excellence in teaching

## **12. GRADUATE STUDENTS**

### **Completed PhD theses**

- 1997, Shachter, Alona  
Thesis title: "Cyclobutabenzene: An Entry to a New Synthetic Methodology."
- 1997, Ashkenazi, Nissan  
Thesis title: "Organometallic Complexes of Benzocyclobutenes: Preparation and Structure."
- 2007, Perl, Sharon  
Thesis title: "Strained Aromatic Systems: Aspects of basic and applied research."
- 2013, Parvari, Galit (Co-supervisor)  
Thesis title: "Multifarenes – Novel Macrocyclic Molecules."  
Main supervisor – Ehud Keinan
- 2015, Gershoni-Poranne, Renana

Thesis title: "Aromatic Systems."

### **Completed MSc theses**

1992, Shazar, Anat

Thesis title: "Haptotropic Rearrangements in  $L_2Ni$  Complexes."

1993, Ashkenazi, Nissan

Thesis title: "Nickel mediated synthesis of Strained Aromatic Compounds."

1994, Weismann, Haim

Thesis title: "Haptotropic Rearrangements in  $L_2Ni$ -alkylanthracene Complexes."

2000, Perl, Sharon

Thesis title: "Nickel(0): Haptotropic Rearrangements and its Use in Synthesis of Cyclobutabenzene."

2000, Banon, Daniella

Thesis title: "Application of the Nickel Mediated Cyclization in the Preparation of Small Rings Substituted Aromatic Compounds."

2000, Zohar, Elinor

Thesis title: "Application of Cyclobutabenzene in Organic Synthesis."

2001, Tkachenko, Elene

Thesis title "Study of Aromatic Systems Substituted by Small Rings."

2002, Ben-Muergi, Na'ama

Thesis title "Synthesis and Study of Small Rings Substituted Cyclophanes."

2009, Petrova, Faina

Thesis title: "En-route to Cyclic  $C_6$ ."

### **PhD theses in progress**

NA

### **MSc theses in progress**

NA

## **13. SPONSORED LONG-TERM VISITORS AND POST-DOCTORAL ASSOCIATES**

*\_Undergraduate Students*

8 – 10/1989	Ben-Hamou, Jacque (France)
7 – 8/1994	Trachtenberg, Dalia (MIT, USA)
7 – 9/1995	Dor, Hen (Technion)
7/1996 – 2/1997	Bakerake, Vladimir (Technion)
7 – 9/1997	Sigal, Nadejda (Technion)
7 – 9/1998	Ökten, Zeynep (TU, Berlin, Germany).
7/1999 – 9/2002	Orbach, Ady (Technion).
2/2001 – 9/2004	Petrova, Faina (Technion)
8/2001 – 9/2003	Nuri, Limor (Technion)
8/2003 – 5/2005	Segal, Sagiv (Technion)
10/2005	Kaganivitz Marina (Technion)

*Other Coworkers*

1992 – 1993, Shazar, Anat, Research Associate.

*PhD. Holding Coworkers*

1992, Dr. Maytal Uri  
Post-Doctoral fellow.

1993 – 1994, Dr, Patzke, Barbara  
Post-Doctoral Fellow (Minerva scholarship).

1998 – 1999, Dr. Zaltsman, Irena  
Research Associate.

1999 – 2003, Dr. Kuzmankov, Irena  
Post-Doctoral Fellow.

2007 – 2009, Dr. Nicka Chinkov  
Post-Doctoral Fellow.

11/2012 – 11/2014 Dr. Anuja Rahalkar  
Post-Doctoral Fellow.

01/2016 – 01-2017 Dr. Seshi Surasani  
Post-Doctoral fellow.

#### **14. RESEARCH GRANTS**

(Year, granting agency, amount, title of grant, names of principal investigators and co-investigators.)

##### **Competitive**

1. 1990 - 1991 Israel Academy of Sciences and Humanities, \$20,000 (for equipment). "Haptotropic Rearrangements in L<sub>2</sub>Ni-arene Complexes."
2. 1991-1994, Israel Academy of Sciences and Humanities, \$87,000. "Interesting Compounds. The Nickel Way."
3. 1992-1994, Volkswagen Foundation for Basic Research, in collaboration with Dr. Roland Boese from the Institute for Inorganic Chemistry, University of Essen, Germany. DM156,000. "Nickel-Organic Complexes. An Entry to Novel Synthetic Methods and Compounds."
4. 1994-1997, Israel Academy of Sciences and Humanities (renewal). \$115,500. "Interesting Compounds. The Nickel Way."
5. 1994-1996, Volkswagen Foundation for Basic Research, in collaboration with Dr. Roland Boese from the Institute for Inorganic Chemistry, University of Essen, Germany (renewal). DM96,000. "Nickel-Organic Complexes. An Entry to Novel Synthetic Methods and Compounds."
6. 1997-2000, BSF (The United State Israeli Binational Foundation), in collaboration with Professor Michael M. Haley from the University of Oregon, USA, \$126,000. "Strained-ring Annulated Cyclophanes: Precursors to Novel Stair-step Polymers."
7. 1999-2002, Israel Science Foundation, \$132,000, "When Strain Met Aromaticity."
8. 2001-2004, BSF (The United State Israeli Binational Foundation), in collaboration with Professor K. Peter C. Vollhardt from the University of California at Berkeley, USA, \$230,000. "The interplay between strain and aromaticity."
9. 2005-2007, Niedersachsen foundation, in collaboration with Professor Andreas Kirschning, University of Hannover, Germany, € 80,000. "Using PASSflow technique for the nickel mediated dibromobenzocyclobutenes syntheses."

10. 2011-2015, Israel Science Foundation, ~\$240,000, "Aromaticity: Fundamental Conceptual studies and Preparation of a New Class of Conjugated Macromolecules."

### Industrial and other sources

NA

## 15. PUBLICATIONS

### Theses

חומרי ביניים פעילים בכימיה סיליקון אורגנית. יוני קרבונים  $\alpha$  סיליליים ויוני סיליקונים. ניסיון ותיאוריה.

Reactive Intermediates in Organo-silicon Chemistry.  $\beta$ -Silyl-Carbenium Ions and Silicenium Ions. Experiment and Theory.

### Refereed papers in professional journals

**Published papers** (the names of coworkers from my group are underlined>

1. Apeloig, Y. and Stanger, A. " $\alpha$ -Silicon-Substituted Vinyl Cations. A Theoretical Ab-initio Investigation", *J. Org. Chem.* **1982**, *47*, 1462-1468.
- 1a. Addition: *J. Org. Chem.* **1983**, *48*, 5413.
2. Stang, P. J.; Ladika, M.; Apeloig, Y.; Stanger, A.; Schiavelli, M. D. and Hughey, M. R. "Bimolecular Substitution at Carbon Center in Neopentyl-like Silacarbonyl Sulfonates", *J. Am. Chem. Soc.* **1982**, *104*, 6852-6854.
3. Apeloig, Y. and Stanger, A. "Are Carbenium Ions Stabilized or Destabilized by  $\alpha$ -Silyl Substitution? The Solvolysis of 2- (trimethylsilyl)-2-adamantyl p-nitrobenzoate", *J. Am. Chem. Soc.* **1985**, *107*, 2806-2807.

4. Stanger, A., Apeloig, Y. and Ginsburg, D. "Why are Tetrakis- [organoborane-diylbis(oxy)]cyclobutanes Formed without a Trace of the Isomeric Tetrakis-dioxabora[3.3.2]propellanes?", *Helv. Chem. Acta* **1985**, *68*, 1179-1185.
5. Apeloig, Y. and Stanger, A. "The First Demonstration of Solvolytic Generation of a Simple Siliconium Ion ( $R_3Si^+$ ). Access Via 1,2- Methyl Migration.", *J. Am. Chem. Soc.* **1987**, *109*, 272-273.
6. Apeloig, Y., Karni, M., Stanger, A., Schwarz, H., Drevello, T. and Czekay, G. "Rearrangement versus Dissociation of Gaseous Silicon-Containing Cations. A Combined Experimental-Theoretical Approach.", *J. Chem. Soc. Chem. Commun.* **1987**, 989-991.
7. Apeloig, Y. and Stanger, A. "The Anomeric Effect at Silicon.", *J. Organomet. Chem.* **1988**, *346*, 305-313.
8. Stanger, A. and Vollhardt, K. P. C. "The Origin of the Symmetrical Structure of Benzene. Is the  $\sigma$  or the  $\pi$  Frame Responsible? An Ab- initio Study of the Effect of HCC Bond Angle Distortion.", *J. Org. Chem.* **1988**, *53*, 4889-4890.
9. Bläser, D.; Boese, R.; Brett, W. A.; Rademacher, P.; Schwager, H.; Stanger, A. and Vollhardt, K. P. C. "Structure, Deformation Electron Densities, Photoelectronic Spectra, and Reactivity of  $^1H$ - Cyclopropa-3,4-dihydro-cyclobuta[a,d]benzene.", *Angew. Chem. Int. Ed. Engl.* **1989**, *28*, 206-208.
10. Stanger, A. "Is the Haptotropic Rearrangement in Bis(tributylphosphine)-(anthracene)nickel Inter- or Intramolecular? Determining the Molecularity by Spin Saturation Transfer Approach.", *Organometallics* **1991**, *10*, 2979-2982.
11. Stanger, A. "Is the Mills-Nixon Effect Real?", *J. Am. Chem. Soc.* **1991**, *113*, 8277-8280.



12. Stanger, A. and Vollhardt, K. P. C. "The Synthesis and Fluxional Behavior of [Bis(trialkylphosphine)nickel]anthracene (Alkyl = Et, Bu).", *Organometallics* **1992**, *11*, 317-320.
13. Stanger, A. and Boese, R. "The Crystal and Molecular Structures of  $(R_3P)_2Ni$ -anthracene (R=Et,Bu)", *J. Organomet. Chem.* **1992**, *430*, 235-243.
14. Bravo-Zhivotovskii, D.; Braude, V.; Stanger, A.; Kapon, M. and Apeloig, Y. "A Novel Route to C=Si Double Bonds via a Peterson-type Reaction.", *Organometallics*, **1992**, *11*, 2326-2328.
15. Stanger, A. and Shazar, A., "A One Pot Method for the Preparation of  $(R_3P)_2Ni^0L$  Complexes.", *J. Organomet. Chem.* **1993**, *458*, 233-236.
16. Boese, R.; Stanger, A.; Stellberg, P and Shazar, A., "A Nickel-Anthracene Complex Having  $\eta^3$  and  $\eta^4$  Coordination in One Crystal.", *Angew. Chem.*, **1993**, *105*, 1500-1502. *Angew. Chem. Int. Ed. Engl.* **1993**, *32*, 1475-1477.
17. Stanger, A.; Ashkenazi, N.; Shachter, A.; Bläser, D.; Stellberg, P. and Boese, R. "Nickel Mediated Cyclobutabenzene Syntheses. Trans-7,8-Dibromocyclobutabenzene. Their One Pot Preparation, X-ray Structure and Diels Alder Reactions.", *J. Org. Chem.*, **1996**, *61*, 2549-2552.
18. Stanger, A. and Weismann, H., "Inter- Vs. Intramolecular Rearrangement of a  $(Bu_3P)_2Ni$  Moiety in its 9-Alkyl and 9,10-Dialkyl Anthracene Complexes. Limiting Conditions and Isomer Stabilities.", *J. Organomet. Chem.*, **1996**, *515*, 183-191.
19. Patzke, B. and Stanger, A. "Synthesis, Characterization and Reactions of a New Seven Membered Nickelacycle - 2,2'-Bipyridine-6,7-dihydro-5H-dibenzo-[c,e]nickelipin.", *Organometallics*, **1996**, *15*, 2633-2639.

20. Stanger, A; Ashkenazi, N.; Boese, R.; Bläser, D. and Stellberg P. "Hexabromotricyclobutabenzene and Hexabromohexaradialene. Their Nickel Mediated One Pot Syntheses and Crystal Structures.", *Chem. Eur. J.* **1997**, *3*, 208-211.
21. Stanger, A.; Ashkenazi, N.; Boese, R.. and Stellberg, P. "Evidence for Bond localization in Cyclobutabenzenes: The Crystal and Molecular Structures of  $\eta^6$ -Cr(CO)<sub>3</sub> and  $\eta^4$ -Fe(CO)<sub>3</sub> Complexes of Cyclobutabenzene.", an invited paper for a special issue of *J. Organomet. Chem.* dedicated to "New Directions in Organometallic Chemistry", *J. Organomet. Chem.* **1997**, *542*, 19-24.
- 21a. Additions and corrections: *J. Organomet. Chem.* **1997**, *548*, 113.
- 21b. Additions and corrections: *J. Organomet. Chem.* **1998**, *556*, 249-250.
22. Stanger, A.; Ashkenazi, N. and Boese, R. "The Competition for Electrons: Aromatic Stabilization in a Six-Membered Ring Vs. Cyclobutadiene-Iron Complex. The Molecular Structure of Tris(tricarbonyliron)benzo-tricyclobutadiene.", *J. Org. Chem.* **1998**, *63*, 247-253.
23. Stanger, A.; Shachter, A. and Boese, R. "Stereocontrol in Nickel Mediated Syntheses of Cyclobutabenzenes. The Selective preparation of *Cis* and *Trans* Derivatives of 7,8-Dibromocyclobutabenzene.", an invited paper for a special issue of *Tetrahedron* dedicated to "nickel in organic synthesis", *Tetrahedron* **1998**, *54*, 1207-1220.
24. Stanger, A. "Strain Induced Bond Localization. The Heteroatom Case.", *J. Am. Chem. Soc.* **1998**, *120*, 12034-12040.
25. Boese, R.; Benet-Buchholz, J.; Stanger, A.; Tanaka, K. and Toda, F. "The Crystal and Molecular Structure of 2,7-di-t-Bu-4,5,9,10-tetraphenyl-[1,8][3,6]-

- benzodicyclobutadiene: An Exceptionally Long C-C Aromatic Bond.", *J. Chem. Soc. Chem. Commun* **1999**, 319-320.
26. Rappoport, Z.; Kobayashi, S.; Stanger, A. and Boese, R. "The Crystal Structure of 1,2-Diphenyl-5,7-di-*tert*-butylspiro[2.5]octa-1,4,7-trien-6-one, a Possible Model for Diphenylvinylidenephonium Ion", *J. Org. Chem.* **1999**, *64*, 4370-4375.
27. Stanger, A. and Tkachenko, E. "SIBL in Strained Aromatic Compounds with Extended  $\pi$  Systems.", *J. Comp. Chem.* **2001**, *22*, 1377-1386 (a special issue dedicated to Professor P. v. R. Schleyer).
28. Rosenblum, G.; Zaltsman, I.; Stanger, A. and Speiser, S. "Solution and supersonic jet studies of the intramolecular exciplex of dinaphthyl propanes", *J. Photochem. Photobiol. A. :Chem.*, **2001**, *143*, 245-250.
29. Denekamp, C. and Stanger, A. "Ion-Neutral Complex Formation and 1,3-Proton Transfer in the Chemical Ionization of Alkylcyclohexyl benzoates", *J. Chem. Soc. Chem. Commun.* **2002**, 236-237.
30. Denekamp, C. and Stanger, A. "Substituent effect and multisite protonation in the fragmentation of alkyl benzoates", *J. Mass Spectrom.* **2002**, *37*, 336-342.
31. Stanger, A. "Retro [2+2+2] Ring Opening in Tricyclobutabenzene Derivatives. Thermochemistry and Reaction Barriers. A Theoretical Hybrid Density Functional Study.", *J. Org. Chem.* **2002**, *67*, 6382-6386.
32. Simaan, S.; Marks, V.; Gottlieb, H. E.; Stanger, A. and Biali, S. "Crystal Structure and Rotational Barrier of Octakis(bromomethyl)naphthalene.", *J. Org. Chem.* **2003**, *68*, 637-640.

33. Bruns, D; Miura, H.; Vollhardt, K. P. C. and Stanger, A. "On Route to Archimedene: Total Synthesis of  $C_{3n}$  Symmetric[7]Phenylene", *Org. Lett.* **2003**, *5*, 549-552.
34. Stanger, A.; Ben-Mergui, N. and Perl, S. "Strained Aromatic Compounds: Are  $\sigma$  and  $\pi$  Strains Additive? A Hybride DFT Study of Bis-cyclobuta-, Bis-cyclobutadieno- and Bis-1,3-Methanoindan-2,2,-*p*-cyclophanes.", *Eur. J. Org. Chem.* **2003**, 2709-2712.
35. Groswasser, D.; Rosenblum, G.; Stanger, A. and Speiser, S. "Laser-induced fluorescence excitation spectra of 1,4-Di(1-naphthyl)propane and 1-buthylnaphthalene in supersonic jet.", *J. Lumin.* **2003**, *102-103*, 273-277.
36. Rosenau T.; Ebner, G.; Stanger, A.; Perl, S. and Nuri, L. "From a Theoretical Concept to Biochemical Reactions: SIBL (Mills-Nixon Effect) in Oxidation of Vitamin E.", *Chem. Eur. J.* **2005**, *11*, 280-287.
37. Bong, D. T. -Y.; Chan, E. W. L.; Diercks, R.; Dosa, P. I.; Haley, M. M.; Matzger, A. J.; Miljanić, O. Š.; Vollhardt, K. P. C.; Bond, A. W.; Teat, S. J. and Stanger, A. "Total Syntheses of *syn*- and *anti*-Doublebent [5]Phenylene", *Org. Lett.* **2004**, *6*, 2249-2252.
38. Zohar, E.; Stanger, A. and Marek, I. "Synthesis of Chiral Methylenecyclopropane Derivatives" *Synlett* **2005**, 2239-2241.
39. Rosenau T. and Stanger, A. "Synthesis and oxidation of 'non-annulated' vitamin E-like compounds", *Tetrahedron Lett.* **2005**, *46*, 7845-7848.
40. Stanger A. "Nucleus Independent Chemical Shifts (NICS). Distance Dependence and Revised Criteria for Aromaticity and Antiaromaticity.", *J. Org. Chem.* **2006**, *71*, 883-893.

41. Stanger, A. "Can Substituted Cyclopentadienes Become Aromatic or Antiaromatic?", *Chem. Eur. J.* **2006**, *12*, 2745-2751.
42. Mohler, D. L.; Kumaraswamy, S.; Stanger, A. and Vollhardt, K. P. C. "1,2,3,4-Tetraethynylbenzene as a Template for Cobalt-Catalyzed Alkyne Cocyclizations: Synthesis of 2,3,8,9-Tetrakis(trimethylsilyl) Angular [3]Phenylene and Bent [5]Phenylene (Benzo[1'',2'':3,4;3'',4'':3',4']dicyclobuta[1,2-*b*:1',2'-*b'*]bisbiphenylene)" *Synlett* **2006**, 2981-2984.
43. Stuparu, M.; Gramlich, V.; Stanger, A. and Schlüter, A.-D. "Exploring the chemistry of an oxygen-bridged, double-stranded cycle with the carbon skeleton of fullerene C<sub>84</sub>'s belt region towards iodotrimethylsilane" *J. Org. Chem.* **2007**, *72*, 424-430.
44. Koehler, F.; Herges, R. and Stanger, A. "Comment on Origin of the nonplanarity of tetrafluoro cyclobutadiene, C<sub>4</sub>F<sub>4</sub>", *J. Phys. Chem. A.* **2007**, *111*, 5116-5118.
45. Stanger A. "A Simple and Intuitive Description of C-H Bond Energies", *Eur. J. Org. Chem.* **2007**, 5717-5725.
46. Masarwa, A.; Stanger, A.; Marek, I. "An Efficient, Facile and General Stereoselective Synthesis of Heterosubstituted Alkylidenecyclopropanes", *Angew. Chem. Int. Ed. Engl.* **2007**, *46*, 8039-8042.
47. Denekamp, C.; Etinger, A.; Amrein, W.; Stanger, A.; Stuparu, M.; Schlüter, A. – D. "Towards a fully conjugated, double-stranded cycle: A mass spectrometric and theoretical study", *Chem. Eur. J.* **2008**, *14*, 1628-1637.
48. Stanger, A. "The Different Aromatic Characters of Some Localized Benzene derivatives.", *J. Phys. Chem. A.* **2008**, *112*, 12849-12854.

49. Einav Tsoglin Helena Chechik, Guy Karseboom, Nicka Chinkov, Amnon Stanger and Ilan Marek "Stereoselective Synthesis of Metalated Cyclobutyl Derivatives", *Adv. Synth. Catal.* **2009**, *351*, 1005-1008.
50. Rozalia Unger, Fritz Weisser, Nicka Chinkov, Amnon Stanger, Theodore Cohen and Ilan Marek "Enantio- and Diastereoselective Tandem Zn-promoted Brook Rearrangement/Ene-Allene Carbocyclization Reaction", *Org. Lett.* **2009**, *111*, 1853-1856.
51. Samah Simaan, Ahmad Masarwa, Elinor Zohar, Amnon Stanger, Philippe Bertus, and Ilan Marek "Cyclopropenylcarbinol Derivatives: New Versatile Intermediates in Organic Synthesis. Application to the Formation of Enantiomerically Pure Alkylidene-Cyclopropane Derivatives.", *Chem. Eur. J.* **2009**, *15*, 8449-8464.
52. Sason Shaik, Zhenhua Chen, Wei Wu, Amnon Stanger, David Danovich, and Philippe C. Hiberty "An Excursion from Normal to Inverted C-C Bonds Shows a Clear Demarcation between Covalent and Charge-Shift C-C Bonds", *ChemPysChem* **2009**, *10*, 2658-2669.
53. Thomas A. Albright, Peter I. Dosa, Tom N. Grossmann, Victor N. Khrustalev, Oluwakemi A. Oloba, Robin Padilla, Renaud Paubelle, Amnon Stanger, Tatiana V. Timofeeva and K. Peter C. Vollhardt " Photo-Thermal Haptotropism in Cyclopentadienylcobalt Complexes of Linear Phenylenes: First Examples of Intercyclobutadiene Metal Migration", *Angew. Chem. Int. Ed.* **2009**, *48*, 9853-9857.
54. Stanger, A. "Obtaining Relative Induced Ring Currents Quantitatively from NICS", *J. Org. Chem.* **2010**, *75*, 2281-2288.

55. Stanger, A. "Is there a connection between electron densities at the ring critical points and NICS? A comment on "The electron density vs. NICS scan: a new approach to assess aromaticity in molecules with different ring sizes."., *Phys. Chem. Chem. Phys.*, **2011**, *13*, 12652-12654.
56. Standera, M.; Häfliger, R.; Gershoni-Poranne, R.; Stanger, A.; Jeschke, G.; vanBeek, J. D.; Bertschi, L.; Schlüter, A. D., "Evidence for Fully Conjugated Double-Stranded Cycles", *Chem. Eur. J.* **2011**, *17*, 12163-12174.
57. Renana Gershoni-Poranne and Amnon Stanger, "An MO-Based Identification of Charge-Shift Bonds", *ChemPhysChem* **2012**, *13*, 2377-2381.
58. Renana Gershoni-Poranne, Christopher M. Gibson, Patrick W. Fowler and Amnon Stanger "Concurrence Between Current Density, NICS and Aromatic Stabilization Energies: A Case Study of [4] and [5]Phenylenes.", *J. Org. Chem.* **2013**, *78*, 7544-7553.
59. Amnon Stanger, "Aromatic Stabilization Energy and Magnetic Properties in Fulvalenes: Is There a Connection Between These Two Aromaticity Indices?", *J. Org. Chem.* **2013**, *78*, 12374-12380.
60. Renana Gershoni-Poranne and Amnon Stanger, "The NICS-XY-Scan: Identification of Local and Global Ring Currents in Multi-Ring Systems.", *Chem. Eur. J.* **2014**, *20*, 5673-5688.
61. Schaffroth, M.; Gershoni-Poranne, R.; Stanger, A.; Bunz, U. H. F. "Tetraazaacenes Containing Four-Membered Rings in Different Oxidation States. Are They Aromatic? A Computational Study", *J. Org. Chem.* **2014**, *79*, 11644-11650.

62. Cao, J.; London, G.; Dumele, O.; von Wantoch Rekowski, M.; Trapp, N.; Ruhlmann, L.; Boudon, C.; Stanger, A.; Diederich, F. "The Impact of Antiaromatic Subunits in  $[4n+2]$   $\pi$ -Systems: Bispentalenes with  $[4n+2]$   $\pi$ -Electron Perimeters and Antiaromatic Character", *J. Am. Chem. Soc.* **2015**, *137*, 7178-7188.
63. Stanger, A. "Is (Benzene)Cr(CO)<sub>3</sub> Really More Aromatic than Benzene?", an invited paper for a special issue of *Can. J. Chem.* In honor of R. Mitchell, *Can. J. Chem.* **2017**, *95*, 263-270.
64. Bhowmik, Susovan; Kosa, Monica; Mizrahi, Amir; Fridman, Natalia; Saphier, Magal; Stanger, Amnon; Gross, Zeev "The planar cyclooctatetraene bridge in bimetallic macrocycles: isolating or conjugating?", *Inorg. Chem.* **2017**, *56*, 2287-2296.
65. Gershoni-Poranne, Renana; Rahalkar, Anuja; Stanger, Amnon "The Predictive Power of Aromaticity: Quantitative Correlation between Aromaticity and Ionization Potentials and HOMO-LUMO Gaps in Oligomers of Benzene, Pyrrole, Furan, and Thiophene.", *Phys. Chem. Chem. Phys.* **2018**, *20*, 14808-14817.
66. Stanger, A. "Is the tetrakis[2.1.1]bicyclohexano-cycloocta-1,3,5,7-tetraene a good model for the D<sub>4h</sub>-1,3,5,7-cyclooctatetraene?", *J Phys Org Chem.* **2018**, *32*, e3908. <https://doi.org/10.1002/poc.3908>
67. Stanger, A. "The Seven-Membered Ring in Bis-Azuleno-Naphthalene is Non-aromatic.", *Eur. J. Org. Chem.* **2019**, 857-859.
68. Stanger, A., "Reexamination of NICS <sub>$\pi$ ,zz</sub>; Height Dependence, Off-center Values and Integration.", *J. Phys. Chem. A.* **2019**, *123*, 3922-3927.



69. Stanger, A.; Monaco, G.; Zanasi, R., "NICS-XY-Scan Predictions of Local, Semi-global, and Global Ring Currents in Annulated Pentalene and s-Indacene Cores Compared to First-Principles Current Density Maps", *ChemPhysChem*. **2020**, *21*, 65-82.
70. Benkyi, I.; Staszewska-Krajewska, O.; Gryko, D. T.; Jaszuński, M.; Stanger, A.; Sundholm, D.; "The interplay of aromaticity and antiaromaticity in N-doped planar and curved nanographenes", *J. Phys. Chem. A*. **2020**, *124*, 695-703.
71. Stanger, A. "NICS – Past and Present", an invited paper, *Eur. J. Org. Chem.* **2020**, 3120-3127.

#### Accepted (or in press) papers

N/A

#### Submitted papers

N/A

#### Review papers

Stanger, A. "What is.....Aromaticity. A Critique of the Aromaticity Concept – Can it Really be Defined?", an invited feature article, *Chem. Commun.* **2009**, 1939-1947.

Renana Gershoni-Poranne and Amnon Stanger "Magnetic Criteria for Aromaticity", an invited review for a special issue of *Chem. Soc. Rev.* entitled "Challenges in Aromaticity: 150 Years after Kekulé's Benzene", *Chem. Soc. Rev.* **2015**, *44*, 6597-6615.

**Books**

NA

**Chapters in books**

Stanger, A. "cyclobutaarenes", a chapter for the book "The chemistry of cyclobutanes", Patai series, Rappoport Z. and Libman, J. Editors, John Wiley & Sons Ltd., Chichester, England, **2005**, pp. 617-654.

Stanger A.; Gershoni-Porrane, R. "Nucleus Independent Chemical Shift (NICS)", an invited chapter for "*Aromaticity: Modern Computational Methods and Applications*", Fernandez, I Editor, Elsevier, in final stage of preparation.

**Refereed papers in conference proceedings**

Stanger, A.; Schachter, A.; Ashkenazi, N.; Boese, R.; Stellberg, P., in "Organic Synthesis via Organometallic – OSM 5", Helmchen, G.; Dibo, J.; Flubacher, D; Wiese, B. editors, Vieweg & Sohn, ISBN 3-528-06905-8, 1997, pp. 59-66.

**Patents granted**

"Nickel mediated synthesis of 7,8,9,10-tetrabromo-[1,2][4,5] bicyclobutabenzene", PCT Int.Appl. (2002), WO 2002102810 A2 20021227.

**Research reports and other publications** (only publications not mentioned above)

NA

**16. CONFERENCES****Plenary, keynote or invited talks** (only lectures delivered by Amnon Stanger are listed)

1. "Nickel Organic Compounds: An Entry to Fascinating Chemistry",

57th Annual Meeting of the Israel Chemical Society, Technion, Haifa, Israel,  
February 12-13, 1992.

2. "Bisphosphine Nickel arene: The Organometallic Benzoic Acid?"  
59th Annual meeting of the Israel Chemical Society, Ben Gurion University,  
Beer Sheva, Israel, February 1994.
3. " $L_2Ni$  Complexes: New Entries to Physical Organometallic Chemistry and  
Novel Synthesis of Interesting Compounds."  
Italian-Israeli Seminar on Physical Organic Chemistry, Alghero (Sassari),  
Italy, June 27-30, 1994.
4. "Nickel Mediated Cyclobutabenzene Syntheses."  
5th symposium "Organic Synthesis via Organometallics (OSM 5)",  
University of Heidelberg, Germany 26-28 September, 1996.
5. "Stereocontrol in the Synthesis of Cyclobutabenzene and Their Use as  
Novel Ligands."  
63<sup>rd</sup> Annual meeting of the Israel Chemical Society, Tel Aviv, Israel,  
February 9-11, 1998.
6. "SIBL: An Experimental and Theoretical Study of the Effect in  
Organometallic Complexes of Cyclobutabenzene and in Heteroatomic  
Systems."  
Second Italian-Israeli Conference on Physical Organic Chemistry, Kibbutz  
Maale Hachamisha, Israel, 14-16 June 1998.
7. "Nickel Mediated Cyclobutabenzene Synthesis. A Unique Entry to Theoretically  
Interesting and Synthetically Useful Systems."  
1<sup>st</sup> French-Israeli Bi-National Workshop on Catalysis, Paris, France, 20-22  
December, 1999.

8. "Some Thoughts about Strain, Aromaticity and Antiaromaticity."  
Symposium on "Electronic Structure: Interplay of Theory and Experiment and Perspectives of Research Activities " organized by the Lise Meitner Minerva Center for Computational Quantum Chemistry, Jerusalem, Israel, February 2, 2000.
9. "Some New Views of Strained Aromatic Compounds"  
3<sup>rd</sup> European Conference on Computational Chemistry (EUCCO-CC3),  
Budapest, Hungary, 4-8 September, 2000.
10. "The Cyclobutabenzene *Ortho*-quinodimethane Question."  
66<sup>th</sup> Meeting of The Israel Chemical Society, Tel Aviv, Israel, 5-6  
February, 2001.
11. "From Mills-Nixon Effect to SIBL and Some Reactions of  
Cyclobutabenzenes."  
10th International Symposium on Novel Aromatics (ISNA-10), San  
Diego, California, USA, 4-8 August, 2001.
12. "The Role of Aromaticity in the Structures and Reactions of Some Strained  
Aromatic Compounds."  
Minerva School on Computational Quantum Chemistry, Berlin,  
Germany, 25-28 September 2002.
13. "Nucleolus Independent Chemical Shift (NICS): A Re-examination"  
Minerva conference, Technion, Haifa, Israel, 19-20 December 2004.
14. "From Basic Concepts to Practice. Computational Organic Chemistry"  
Gordon Research Conference on Physical Organic Chemistry, Holderness  
school, Plymouth New Hampshire, USA, 24-29 June, 2007.

15. "Intuitive description of C-H bond energies and the use of NICS-scan to assess reorganization energies"  
  
15th European Symposium on Organic Chemistry (ESOC), Dublin, Ireland, 8-13 July 2007.
16. " The True Nature of Some Systems Containing Distorted Benzene Moieties."  
  
Israel Chemical Society Meeting, Jerusalem, Israel, 4-5 February 2008.
17. "Using NICS-scan for Assessing the nature of some Cyclic Conjugated Organic and Organometallic Systems  
  
19<sup>th</sup> conference of the IUPAC International Conference on Physical Organic Chemistry (ICPOC-19), Santiago de Compostella, Spain, 13-18 July 2008.
18. "Using NICS-scan for Assessing the nature of some Cyclic Conjugated Organic and Organometallic Systems"  
  
Minerva conference dedicated the Sason Shaik's 60<sup>th</sup> birthday, Jerusalem, Israel, November 12-13 2008.
19. "Using NICS-scan for the semi-quantitative assessment of ring currents", ISNA 13, Luxembourg, July 19-24 2009.
20. "Computational Organic Chemistry: The "Can" and "Can't" be Done with Non Supercomputers in Aromatic Chemistry"  
  
Linksceen meeting, Technion, Haifa, Israel, December 1 2009.
21. "Quantitative Relative Induced Ring Currents Intensities from NICS"  
  
75<sup>th</sup> meeting of the Israel Chemical Society, December 24-25 2010.

22. "The Relationship Between Aromatic Stabilization Energy and Induced Ring Current: A Case Study of the [N]Phenylenes."  
21<sup>st</sup> IUPAC International Conference on Physical Organic Chemistry (ICPOC 21), Durham, U.K., September 9-13, 2012.
23. "Aromaticity by Aroma"  
11<sup>th</sup> chemical physics congress, October 17-18, Istanbul, Turkey.
24. "Quantitative aromaticity"  
"The Chemical Bond at the 21th Century" conference, Xiamen, China, June 14-18, 2015.
25. "New Quantitative aspects of Aromaticity, Computational Tools and Some of Their Uses"  
Gordon Research Conference on physical organic chemistry, June 21-26, 2015, Holderness, NH, USA.
26. "NICS-scan methods: The safe and user-friendly methods for assigning induced ring currents"  
MAGIC meeting, 4-9 September 2016, Salerno, Italy.
27. "Aromaticity: Some New Insights into an Old Topic"  
17<sup>th</sup> International Conference for Novel Aromatic Compounds (ISNA 17), Stony Brook, NY, USA, 23-28 July 2017.
28. "Some Thoughts About Aromaticity"  
Aromaticity 2018 meeting, Riviera Maya (Cancun), Mexico, 27 November -1 December 2018.
29. "The New  $\int$ NICS $_{\pi,zz}$  method"  
17<sup>th</sup> European Symposium of Organic Reactivity" (ESOR 17), Dubrovnik, Croatia, 8-13 September 2019.

**Upcoming Invitations**

30. "Local  $\pi$  currents in aromatic and antiaromatic systems"  
MAGIC 2020, Cambridge, UK, 6-10 September 2020.  
Postponed due to the Coronavirus outbreak.

**Participation in organizing conferences**

Member of the local scientific organizing committee of the 9<sup>th</sup> International Symposium on Homogeneous Catalysis, Jerusalem, Israel, 21-21 August 1994.

Member of the organizing committee of the 62<sup>nd</sup> Israel Chemical Society Meeting, Technion, Haifa, 3-5 February 1997.

Chairman of the organization committee of the European Symposium of Organic Reactivity (ESOR) XII, Technion, 6-11 September 2009.