

Date: 6/11/2011

**RESUME****NIR TESSLER****Academic Degrees:**

1989	B.Sc. Summa Cum Laude	Department of Electrical Engineering, Technion, Haifa, Israel
1992	M.Sc.	Department of Electrical Engineering, Technion, Haifa, Israel
1995	D.Sc.	Department of Electrical Engineering, Technion, Haifa, Israel

**Academic Appointments**

2008	Professor	Department of Electrical Engineering, Technion, Haifa, Israel
2003	Associate Professor	Department of Electrical Engineering, Technion, Haifa, Israel
October 1999	Senior Lecturer	Department of Electrical Engineering, Technion, Haifa, Israel
1999	EPSRC advanced fellow	Cambridge University, Cavendish Laboratory, UK.
1997-1999	Senior Research Associate	Cambridge University, Cavendish Laboratory, UK.
1997	Academic Guest	Department de Physique, Institute de Micro-et Optoelectronique, Ecole Polytechnique Federal de Lausanne (EPFL).
1995-1997	Research Associate	Cambridge University, Cavendish Laboratory, UK.

**Departmental Roles**

2002-2003	manager of the nano-electronic forum (laying the foundation for the nano-electronic center)
2003-2005	Member of the committee for student submission
2004-2005	Head of the committee for student admission
2006-2007	Vice dean for undergraduate students affairs
2010-	Head of Nanoelectronics center and Microelectronics center

**Professional Experience:**

1988-1999	Student member of The Technical Staff, Electronics Department, RAFAEL Acko, Israel
1987-1989	Computer Operator, Computer Department, Tambur Acko, Israel
1982-1985	Training and Exercise Co-ordinator Officer, Israel Air Force

**Research Interests:**

Conducting, semi-conducting and light-emitting organic materials. This includes photo-physical processes (including laser action and micro-cavities), transport of charges and of electron-hole pairs (excitations), processing of devices and circuits (diodes, transistors, detectors). As a new direction, the combination of synthetic and natural (biological) polymers as a tool to extend the understanding and scope of each separate system.

**Teaching Experience:**

1982--1983	Teaching Supervisor, Israel Air Force School.
1990--1995	Teaching Assistant, Electrical Engineering, Technion - Israel Institute of Technology, Haifa, Israel.
1999--	Organic Materials and Devices, Graduate Introduction to electrical engineering, undergraduate Electrical engineering 1 , Undergraduate.

**Membership in Professional Societies**

IEEE  
Materials Research Society  
Israeli Chemical Society

**Honors**

The President of the Technion, Excellence Award 1986,1987,1988  
The Gutvirt Fellowship, Special Excellence Scholarship 1991  
The Minister of Communication, Excellence Scholarship 1993  
The Charles Clore Foundation, Excellence Scholarship 1994  
The Rothschild Post Doctoral Fellowship 1996  
AVI Fellowships, Post Doctoral Fellowship 1997

Engineering and Physical Sciences Research Council, UK, Advanced Fellowship  
1999

Alon Fellowship 1999

Andre and Bella Meyer academic lectureship - France 2000-2001.

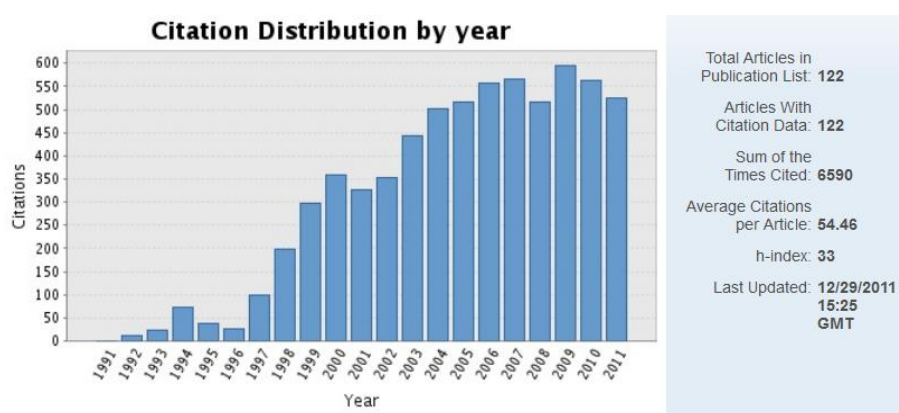
Friedenberg special research award 2000

Gutvirt price for active research (Henry Gutvirt Fund for the promotion of research)

David Ben Aharon prize (2004)

Henry Taube prize for academic excellence (2010)

Hershel and Hilda Rich Technion Innovation award (2011)



## LIST OF PUBLICATIONS

### Theses

M.Sc. Thesis: Spectral and Dynamic Response of Active Optical Filters

D.Sc. Thesis: Dynamic Properties of Inverted QW Laser Structure

### Refereed Journal Papers

1. G. Eisenstein, N. Tessler, U. Koren, J.M. Wiesenfeld, G. Raybon, and C.A. Burrus, Length Dependence of the Saturation Characteristics in 1.5 $\mu$ m Multiple Quantum Well Optical Amplifiers, *IEEE Photonic Technol. Lett.*, 2, 11, (1990), p. 790-791
2. N. Tessler, R. Nagar, G. Eisenstein J. Salzman, U. Koren, G. Raybon and C.A. Burrus, Distributed Bragg Reflector Active Optical Filters, *IEEE J. Quantum Electron.*, 27, 8, (1991), p. 2016 - 2024
3. N. Tessler, R. Nagar and G. Eisenstein, U. Koren and G. Raybon, Characteristics Of Distributed Bragg Reflector Active Optical Filters, *IEEE Photonic Technol. Lett.*, 3, 4, (1991), p. 336 - 338

4. R. Nagar, D. Abraham, N. Tessler, A. Fraenkel G. Eisenstein, E.P. Ippen, U. Koren, and G. Raybon, Frequency Modulation Mode-Locking in a Semiconductor Laser, *Optics Letters*, 16, 22, (1991), p. 1750 - 1752
5. N. Tessler, R. Nagar, D. Abraham, G. Eisenstein, U. Koren, and G. Raybon, Coupling Between Barrier And Quantum Well Energy States In a Multiple Quantum Well Optical Amplifier, *Appl. Phys. Lett.*, 60, 6, (1992), p. 665 - 667
6. R. Nagar, N. Tessler, D. Abraham, G. Eisenstein U. Koren, G. Raybon, Measurements Of The Barrier - Well Injection Bottleneck In A Multiple Quantum Well Optical Amplifier, *Appl. Phys. Lett.*, 60, 15, (1992), p. 1788 - 1790
7. N. Tessler, R. Nagar, G. Eisenstein, Structure Dependent Modulation Response In Quantum Well Lasers, *IEEE J. Quantum Electron.*, 28, 10, (1992), p. 2242 - 2250
8. N. Tessler, R. Nagar, G. Eisenstein, S. Chandrasekher, C.H. Joyner, A.G. Dentai, U. Koren, G. Raybon, Non Equilibrium Effects in Quantum Well Lasers, *Appl. Phys. Lett.*, 61, 20, (1992), p. 2383 - 2385
9. N. Tessler, G. Eisenstein, Distributed Nature of Quantum Well Lasers, *Appl. Phys. Lett.*, 62, 1, (1993) p. 10 - 12
10. N. Tessler, G. Eisenstein, Transient Carrier Dynamics and Photon Assisted Transport in Multiple Quantum Well Lasers, *IEEE Photonic Technol. Lett.*, 5, 3, (1993) p. 291- 293
11. M. Margalit, R. Nagar, N. Tessler, G. Eisenstein, M. Orenstein, Bistability and Optical Control of a Distributed Bragg Reflector Laser, *Optics Lett.*, 18, 6, (1993) p. 610 - 612
12. N. Tessler, G. Eisenstein, On Carrier Injection And Gain Dynamics in Quantum Well Lasers, *IEEE J. Quantum Electron.*, 29, 6, (1993) p. 1586 - 1595
13. S. Mark, N. Tessler, G. Eisenstein, J. Mork, Broad Band Femtosecond Pump-Probe Set-Up Operating at 1300 and 1550 nm *Appl. Phys. Lett.*, 64, 15, (1994), p. 1899 -1901
14. N. Tessler, J. Mark, G. Eisenstein, J. Mork, U. Koren, C. A. Burrus, Gain Dynamics in Quantum Well Lasers and Optical Amplifiers - An Experimental Comparison. *Appl. Phys. Lett.*, 64, 16, (1994), p. 2050 - 2052
15. N. Tessler, G. Eisenstein, Modeling Carrier Dynamics And Small Signal Response in Quantum Well Lasers, *Quantum and Optical Electronics*, 26, (1994) pp. S767 - S787 (**Invited paper**)
16. V. Mikhaelashvili, N. Tessler, R. Nagar, G. Eisenstein, A. G. Dentai, S. Shandrasekhar, C. H. Joyner, Temperature Dependent Loss and Carrier Overflow Effects in Quantum Well Lasers, *IEEE Photonic Technol. Lett.*, 6, 11, (1994) pp. 1293 - 1296

17. N. Tessler, M. Margalit, G. Eisenstein, U. Koren, C. A. Burrus, Short Cavity Distributed Bragg reflection Lasers With a Narrow Band Bragg Mirror: Dynamic Characteristics, *Appl. Phys. Lett.*, 65, 24, (1994) pp. 3048 - 3050
18. N. Tessler, M. Margalit, R. Ben-Michael, M. Orenstein, G. Eisenstein, Modulation of Quantum Well Lasers by Short Optical Excitation: Energy and Spatial Dependent Effects, *IEEE Photonic Technol. Lett.*, 7, 1 (1995) pp. 23 - 25
19. N. Tessler, A. Berenzon, G. Eisenstein, Analysis of Pump Probe Measurements and Carrier Overflow Effects in Multiple Quantum Well Optical Amplifiers, *IEEE J. Quantum Electron.*, 30, 12,(1995), pp. 2767 - 2770
20. N. Tessler, M. Margalit, G. Eisenstein, U. Koren Wide Band Amplitude Modulation by Electro Optic Tuning of the Center Wavelength in Short Cavity Distributed Bragg Reflector Lasers, *IEEE J. of Selected Topics in Quantum Electron.*, 1, 2 (1995)
21. N.Tessler, V. Mikhaelashvili, R. Nagar, G. Eisenstein, A.G. Dentai, S. Chandrasekhar, C.H. Joyner, Lasing Transitions Between Self Localized Barrier State Electrons and Confined State Heavy Holes in InGaAs/InGaAsP/InP Multiple Quantum Well Lasers, *IEEE J. Quantum Electron.*, 31, 11 (1995), pp. 1935-1940.
22. D. Finzi, N.Tessler, V. Mikhaelashvili, G. Eisenstein, A.G. Dentai,S. Chandrasekhar, C.H. Joyner, Dynamics of barrier State Self localization inInGaAs/InGaAsP Multiple Quantum Well Lasers, *Appl. Phys. Lett.*, 68,(1996) pp. 2486 - 2488
23. U. Ben-Ami, N. Tessler, N. Ben-Ami, R. nagar, G. Fish, K. Lieberman, G. Eisenstein, A. Lewis, J.M. Nielsen, A. Moller-Larson, Near-Infrared Contact Mode Collection Near-Field Optical and Normal Force Microscopy of Modulated Multiple Quantum Well Lasers, *Appl. Phys. Lett.*, 68, (1996), pp. 2337 - 2339.
24. N. Tessler, G.J. Denton, and R.H. Friend, Lasing from Conjugated-Polymer Microcavities, *Nature*, 382, (1996), pp. 695-697.
25. G.J. Denton, N. Tessler, N.T. Harrison and, R.H. Friend, Factors influencing Stimulated Emission from Poly(p-phenylenevinelene), *Phys. Rev. Lett.*, 78, (1997), pp. 733-736.
26. N. Tessler, S. Burns, H. Becker, R.H. Friend, Suppressed Angular Color Dispersion in Planar Microcavities, *Appl. Phys. Lett.*, 70, (1997), pp. 556-558.
27. R.H. Friend, G.J. Denton, J.J.M. Halls, N.T. Harrison, A.B. Holmes, A. Kohler, A. Lux, S.C. Morratti, K. Pichler, N. Tessler and K. Towns, Electronic excitations in luminescent conjugated polymers, *Solid State Comm.*, 102, (1997) pp. 249-258

28. H. Becker, S.E. Burns, N. Tessler, R.H. Friend, Role of optical properties of metallic mirrors in microcavity structures, *J. Appl. Phys.*, 81, (1997) pp. 2825-2829.
29. N. Tessler, G.J. Denton, and R.H. Friend, Lasing characteristics of PPV microcavities, *Synth. Met.*, 84, (1997), pp. 475-476.
30. R.H. Friend, G.J. Denton, J.J.M. Halls, N.T. Harrison, A.B. Holmes, A. Kohler, A. Lux, S.C. Moratti, K. Pichler, N. Tessler, K. Towns, Electronic processes of conjugated polymers in semiconductor device structures, *Synth. Met.*, 84, (1997), pp. 463-470.
31. J. C. de Mello, N. Tessler, S. C. Graham, X. Li, A. B. Holmes, R.H. Friend, Ionic Space-Charge Assisted Current Injection in Organic Light Emitting Diodes, *Synth. Met.*, 85, (1997), pp. 1277-1278.
32. G.J. Denton, N. Tessler, M.A. Stevens, R.H. Friend, Spectral narrowing in optically-pumped Poly(p-phenylenevinylene) films, *Adv. Mat.*, 9, (1997), pp. 547-550.
33. D. Finzi, V. Mikhaelashvili, N. Tessler, G. Eisenstein, Modification of modal gain in InGaAs-GaAs quantum-well lasers due to barrier-state carriers, *IEEE J. Select. Topics in Quant. Elect.*, 3, (1997), pp. 142-147.
34. N. Tessler, S. Marcinkevicius, U. Olin, C. K. V. Silfvenius, B. F. Stalnacke, and G. Landgren, "Vertical carrier transport in InGaAsP multiple-quantum-well laser structures: effect of p-doping," *IEEE J. Selected Topics In Quantum Electronics*, 3, (1997), pp. 315-319.
35. N. Tessler, N. T. Harrison, and R. H. Friend, "High peak brightness polymer light-emitting diodes," *Adv. Mat.*, 10, (1998) pp. 64-68.
36. N. Tessler, G.J. Denton, N.T. Harrison, M.A. Stevens, S.E. Burns, and R.H. Friend, High Excitation Density in Light Emitting Polymers, *Synth. Met.*, 91, (1997), pp. 61-64.
37. J. C. deMello, N. Tessler, S. C. Graham, and R. H. Friend, "Ionic space-charge effects in polymer light-emitting diodes," *Phys. Rev. B*, 57, (1998), pp. 12951-12963.
38. N.T. Harrison, N. Tessler, C.J. Moss, K. Pichler, R.H. Friend, "Peak current density and brightness from poly(p-phenylenevinylene) based light-emitting diodes", *Optic. Mater.*, 9, (1998), 178-182.
39. H. Sirringhaus, N. Tessler, R.H. Friend, "Integrated Optoelectronic Devices based on Conjugated Polymers", *Science*, 280, (1998), pp. 1741-1743.
40. N. Tessler, N. T. Harrison, and R. H. Friend, "Current Heating in Polymer Light Emitting Diodes," *Appl. Phys. Lett.*, 73, (1998), pp. 732-734.

41. V. Cleave, G. Yahioglu, P. Le Barny, R.H. Friend, and N. Tessler, "Harvesting of singlet and triplet energy in polymer LEDs", *Adv. Mat.*, 11, (1999), pp. 285-288.
42. N. Tessler, "Lasers based on semiconducting organic materials", *Adv. Mat.*, 11, (1999), pp. 363-370, **Review paper**.
43. G.J. Denton, N. Tessler, M.A. Stevens and, R.H. Friend, " Optical response of conjugated polymers excited at high intensity", *Synth. Met.*, 102, (1999), 1008-1009.
44. H. Sirringhaus, N. Tessler, R.H. Friend," Integrated, high-mobility polymer field-effect transistors driving polymer light-emitting diodes", *Synth. Met.*, 102 (1999), pp. 857-860.
45. D.J. Pinner, N. Tessler and R.H. Friend, " Moving the recombination zone in two layer polymer LEDs using high voltage pulses", *Synth. Met.*, 102 (1999), pp. 1108-1109.
46. N. Tessler, D.J. Pinner, V. Cleave, D.S. Thomas, G. Yahioglu, P. Le Barny and R.H. Friend, "Pulsed Excitation of Low Mobility Light Emitting Diodes – Implication for Organic Lasers", *APL*, 74, (1999), 2764-2766.
47. P.K.H. Ho, N. Tessler and R.H. Friend, " Towards solution-processible semiconducting polymer-based photonic devices", *Synth. Met.*, 102, (1999), pp. 1020-1021.
48. N. Tessler, X.C. Li, R.H. Friend, S.C. Morrati, A.B. Holmes, " New method for colour patterning", *Synth. Met.*, 102, (1999), pp. 1124-1125.
49. P.K.H. Ho, R.H. Friend and N. Tessler, "All Polymer Photonic structures", *Science*, 285, (1999), 233-236.
50. D.J. Pinner, R.H. Friend and N. Tessler, " Transient Electroluminescence of Polymer light emitting diodes using Electrical Pulses", *J. Appl. Phys.*, 86, (1999), 5116-5130.
51. D.J. Pinner, R.H. Friend and N. Tessler, "Analysis of the turn-off dynamics in polymer light-emitting diodes", *Appl. Phys. Lett.*, 76, (2000), 1137-1139.
52. N. Tessler, P.K.H. Ho, V. Cleave, D.J. Pinner, R.H. Friend, G. Yahioglu, P. Le Barny, J. Gray, M. de Souza, G. Rumbles, " Material and Device Related Properties in the Context of the Possible Making of Electrically Pumped Polymer Laser", *Thin Solid Films*, 363, (2000), 64-67 (**Invited paper**).
53. D.J. Pinner, R.H. Friend and N. Tessler, " Time-resolved transport in conjugated polymers", *Synth. Met.*, 111, (2000), 257-261.

54. D.J. Pinner, R.H. Friend and N. Tessler, "The Use of Multiple Electrical Pulses to Study Charge Transport in Polymer Light-Emitting Diodes", *Appl. Phys. Lett.*, *Appl. Phys. Lett.*, 77 (2000), 1493-1495.
55. J.C. deMello, J.J.M. Halls, S.C. Graham, N. Tessler, R.H. Friend, "Electric field distribution in polymer light-emitting electrochemical cells", *Phys. Rev. Lett.*, 85 (2000), 421-424.
56. N. Tessler, D.J. Pinner, R.H. Friend, Semiconductor device model applied to electrically pulsed polymer LEDs, *Synth. Met.*, 111, (2000), 269-272.
57. N. Tessler, "Transport and Optical Modeling of Organic Light Emitting Diodes", *Appl. Phys. Lett.*, 77 (2000), 1897-1899 .
58. N. Tessler, D.J. Pinner, V. Cleave, P.K.H. Ho, R.H. Friend, G. Yahioglu, P. Le Barny, J. Gray, M. de Souza, G. Rumbles, "Properties of light emitting organic materials within the context of future electrically pumped lasers", *Synth. Met.* 115 (2000), 57-62 (**Invited paper**).
59. V. Cleave, G. Yahioglu, P. Le Barny, Do-Hoon Hwang, Andrew B. Holmes, R.H. Friend, N. Tessler, "Transfer processes in semiconducting polymer-porphyrin blends", *Adv. Mat.*, 13 (2001), 44-47.
60. N. Tessler, "Polymer LEDs as a physics tool", *Israel Journal of Chemistry* , 40 (2000), 147-152 (**Invited paper**).
61. P.K.H. Ho, Ji-Seon Kim, N. Tessler, R.H. Friend, "Photoluminescence of poly(p-phenylenevinylene)-silica nanocomposites: Evidence for emission from two electronic states by Franck-Condon analysis", *J. Chem. Phys.*, 115 (2001), 2709-2720.
62. N. Tessler and Y. Roichman, "Two Dimensional Simulation of Polymer Field Effect Transistor", *Appl. Phys. Lett.*, 79 (2001), 2987-2989.
63. N. Tessler, D.J. Pinner, P.K. Ho, "Optoelectronic devices based on hybrid organic-inorganic structures", *Opt. Mat.*, 17 (2001), 155-160. (**Invited paper**)
64. Y. Roichman and N. Tessler, " Structures of Polymer Field Effect Transistor - experimental and numerical analysis", *Appl. Phys. Lett.*, 80 (2002), 151-153.
65. N. Tessler, V. Medvedev, M. Kazes, S. Kan, U. Banin, "Efficient Near Infrared Polymer-Nanocrystal Light Emitting Diodes", *Science*, 295 (2002), 1506-1508.
66. Y. Roichman and N. Tessler, " Generalized Einstein-relation for disordered semiconductors", *Appl. Phys.Lett.*, 80 (2002), 1948-1950.
67. Y. Preezant, Y. Roichman, N. Tessler, "Amorphous Organic Devices – Degenerate semiconductors", *J. Phys. Cond. Matt.* 14 (2002) 9913–9924 (**Invited paper**)
68. Y. Roichman and N. Tessler, "Charge transport in conjugated polymers - the influence of charge concentration," *Synthetic Metals*, vol. 135-136, pp. 443-444, (2003).
69. Y. Preezant, N. Tessler, "Self-consistent analysis of the contact phenomena in low-mobility semiconductors". *J. Appl. Phys.* 93 (2003) 2059-2064.
70. V. Medvedev, M. Kazes, S. Kan, U. Banin, Y. Talmon, and N. Tessler, "Near infrared polymer nanocrystal LEDs," *Synthetic Metals*, vol. 137, pp. 1047-1048, (2003).

71. Sagi Shaked, Shay Tal, Yohai Roichman, Alexey Razin, Steven Xiao, Yoav Eichen, Nir Tessler, "Charge Density and Film Morphology dependence of Charge Mobility in Polymer Field Effect Transistors", *Adv. Mat.*, 15 (2003) 913-916.
72. Y. Preeznat and N. Tessler, "Self consistent treatment of contact region in organic semiconductors devices," *Synthetic Metals*, vol. 137, pp. 1061-1062, (2003).
73. N. Tessler and N. Rappaport, "Excitation density dependence of photocurrent efficiency in low mobility semiconductors," *Journal of Applied Physics*, vol. 96, pp. 1083-1087, (2004).
74. Y. Roichman, Y. Preeznat, and N. Tessler, "Analysis and modeling of organic devices," *Physica Status Solidi a-Applied Research*, vol. 201, pp. 1246-1262, (2004).
75. O. Katz, Y. Roichman, G. Bahir, N. Tessler, and J. Salzman, "Charge carrier mobility in field effect transistors: analysis of capacitance-conductance measurements," *Semicond. Sci. Technol.*, vol. 20, pp. 90-94, (2005)
76. D.J. Pinner, R.H. Friend and N. Tessler, " The use of electrical pulses to study the physics of bilayer organic light-emitting diodes", *J. Appl. Phys.*, **97**, 014504-1 -014504-6 (2005).
77. M. Brumer, A. Kigel, L. Amirav, A. Sashchiuk, O. Solomesch, N. Tessler, and E. Lifshitz, "PbSe/PbS and PbSe/PbSe<sub>x</sub>S<sub>1-x</sub> Core/Shell Nanocrystals," *Adv. Funct. Mater.*, vol. 15, 2005.
78. H. Salman, Y. Abraham, S. Tal, S. Meltzman, M. Kapon, N. Tessler, S. Speiser, and Y. Eichen, "1,3-Di(2-pyrrolyl)azulene: An efficient luminescent probe for fluoride," *European Journal of Organic Chemistry*, pp. 2207-2212, 2005.
79. N. Rappaport, O. Solomesch, and N. Tessler, "The interplay between space charge and recombination in conjugated polymer/molecule photocells," *Journal of Applied Physics*, vol. 98, pp. 033714, 2005.
80. O. Solomesch, A. Kigel, A. Saschiuk, V. Medvedev, A. Aharoni, A. Razin, Y. Eichen, U. Banin, E. Lifshitz, N. Tessler, " Optoelectronic properties of polymer-nanocrystal composites active at Near-IR wavelengths", *J. Appl. Phys.*, 98, pp. 074310, 2005.
81. N. Tessler and Y. Roichman, " Amorphous Organic Molecule/Polymer Diodes and Transistors – Comparison between Predictions based on Gaussian or Exponential Density of States", *Organic Electronics*, 6, pp. 200-210, 2005.
82. Feng Li, O. Solomesch, Philip R. Mackie, D. Cupertino, Nir Tessler, "Low gain-threshold of the cavity mode close to the cut-off wavelength in a three-slab asymmetric conjugated polymer based waveguide structure", *J. Appl. Phys.*, 2005.
83. O. Tal, Y. Rosenwaks, Y. Preeznat, N. Tessler, C. K. Chan, and A. Kahn, "Direct determination of the hole density of states in undoped and doped amorphous organic films with high lateral resolution," *Physical Review Letters*, vol. 95, pp. 256405, 2005.
84. O. Tal, Y. Rosenwaks, Y. Roichman, Y. Preeznat, N. Tessler, C. K. Chan, and A. Kahn, "Threshold voltage as a measure of molecular level shift in organic thin-film transistors," *Appl. Phys. Lett.*, vol. 88, pp. 043509, 2006.
85. N. Rappaport, O. Solomesch, and N. Tessler, "The mobility spatial distribution function: Turn-on dynamics of polymer photocells", *J. Appl. Phys.*, Vol. 99, 6, pp. 064507, 2006.

86. O. Solomesch, V. Medvedev, Philip R. Mackie, D. Cupertino, A. Razin, N. Tessler, "Electronic Formulations – Photo patterning of luminescent polymers", *Advanced functional materials*, Vol. 16, 16, pp. 2095-2102, 2006.
87. N. Tessler and N. Rappaport, "The Loss of Photocurrent Efficiency in Low Mobility Semiconductors – analytic approach to space charge effects", Vol. 89, 1, pp. 013504, 2006..
88. Y. Preezant and N. Tessler, " carrier heating in disordered organic semiconductors", *Phys. Rev. B.*, Vol. 74, 23, p. 235202, 2006.
89. N. Rapaport, Y. Bar, O. Solomesch, and N. Tessler, "Mobility spatial distribution function: Comparative method for conjugated polymers/molecules," *Appl. Phys. Lett*, vol. 89, pp. 252117, 2006.
90. Y.J. Yu, S.H. Lee, D.H. Choi, J.I. Jin, N. Tessler, "Photopatternability of Poly(vinylcarbazole) Bearing Cinnamate Pendants and Its Blends with a Soluble Poly(p-phenylene vinylene) Derivative", *Macromolecular Research*, Vol.15, No.2, 142-146, 2007.
91. Olga Solomeshch, Young-Jun Yu, Vladislav Medvedev, Alexey Razin, Batya Blumer-Ganon, Yoav Eichen, Jung-Il Jin and Nir Tessler, *Synthetic Metals*, 157, 21, 841-845, 2007.
92. N. Rappaport, Y. Preezant, and N. Tessler, "Spatially dispersive transport- a mesoscopic phenomenon in disordered semiconductors", *Phys. Rev. B.*, **76**, 235323 (2007)
93. Elisabeth Holder, Nir Tessler and Andrey L. Rogach, "Hybrid nanocomposite materials with organic and inorganic components for opto-electronic devices" *J. Mater. Chem.*, 18, 1064-1078, (2008)
94. M. Soreni-Harari, N. Yaacobi, D. Steiner, A. Aharoni, U. Banin, O. Millo, N. Tessler, "Tuning energetic levels in nanocrystal quantum dots through surface manipulations", *Nano Lett*, 8 , 678-684 (2008)
95. O. Tal, I. Epstein, O. Baboor, Y. Roichman, Y. Ganot, N. Tessler, C.K. Chan, A.Kahn, and Y. Rosenwaks, "Measurements of the Einstein Relation in Doped and Undoped Molecular Thin Films", *Phys. Rev. B.*, Vol 77, 201201, (2008).
96. Y. Young-Jun, S. Olga, C. Helena, A. A. Goryunkov, R. F. Tuktarov, C. Dong Hoon, J. Jung-Il, E. Yoav, and T. Nir, "p-type doping in organic light emitting diodes based on fluorinated C60," *Journal of Applied Physics*, vol. 104, p. 124505, (2008).
97. A. Eran, P. Yaron, and T. Nir, "Photopatternable self-assembled monolayers as micron scale templates for polymer based field effect transistors," *Applied Physics Letters*, vol. 94, p. 013502, (2009).
98. N. Tessler, Y. Preezant, N. Rappaport, and Y. Roichman," Charge Transport in Disordered Organic Materials and its Relevance to Thin Film Devices – a Tutorial Review", *Advanced Materials*, Vol. 21, p. 2741-2761, (2009)
99. Olga Solomeshch, Young Jun Yu, Alexey A. Goryunkov, Lev N. Sidorov, Renat F. Tuktarov, Dong Hoon Choi, Jung-Il Jin, Nir Tessler, "Ground-State Interaction and Electrical Doping of Fluorinated C60 in Conjugated Polymers", *Advanced Materials*, Vol. 21, p. 4456 (2009)

100. Yana Vaynzof, Yevgeni Preezant, and Nir Tessler, "Current voltage relation of amorphous materials based PN diodes – the effect of degeneracy in organic polymers/molecules", *Journal of Applied Physics*, Vol 106, P. 6 (2009)
101. Ariel J. Ben-Sasson, Eran Avnon, Elina Ploshnik, Oded Globerman, Roy Shenhar, Gitti L. Frey, Nir Tessler, "Patterned Electrode Vertical Field Effect Transistor Fabricated Using Block co-Polymer Nano-Templates", *Applied Physics Letters*, V. 95, p. 213301 (2009).
102. Carmit Hertzog-Ronen, Elena Borzin, Yulia Gerchikov, Nir Tessler, and Yoav Eichen, "Detection and Identification of Alkylating Agents by Using a Bioinspired "Chemical Nose" ", *Chemistry*, vol. 15, p. 10380 (2009)
103. Yair Gannot, Carmit Hertzog-Ronen, Nir Tessler, and Yoav Eichen, "Sensing of Alkylating Agents Using Organic Field-Effect Transistors", *Adv. Func. Mat.*, Vol. 20, pp. 105-110, (2010)
104. M. Soreni-Harari, D. Mocatta, M. Zimin, Y. Gannot, U. Banin, and N. Tessler, "Interface Modifications of InAs Quantum-Dots Solids and Their Effects on FET Performance," *Advanced Functional Materials*, vol. 20, pp. 1005-1010 (2010).
105. A. Epstein, N. Tessler, and P. D. Einziger, "The Impact of Spectral and Spatial Exciton Distributions on Optical Emission From Thin-Film Weak-Microcavity Organic Light-Emitting Diodes," *IEEE JQE*, vol. 46, pp. 1388-1395 (2010).
106. A. Epstein, N. Tessler, and P. D. Einziger, "Analytical extraction of the recombination zone location in organic light-emitting diodes from emission pattern extrema," *Opt. Lett.*, vol. 35, pp. 3366-3368 (2010).
107. Y. Preezant and N. Tessler, "Exciton formation as a rate limiting step for charge recombination in disordered organic molecules or polymers," *Journal of Applied Physics*, vol. 109, p. 013701, 2011.
108. E. Avnon, N. Yaacobi-Gross, E. Ploshnik, R. Shenhar, and N. Tessler, "Low cost, nanometer scale nanoimprinting - Application to organic solar cells optimization," *Organic Electronics*, vol. 12, pp. 1241-1246, Jul 2011.
109. I. Diukman, L. Tzabari, N. Berkovitch, N. Tessler, and M. Orenstein, "Controlling absorption enhancement in organic photovoltaic cells by patterning Au nano disks within the active layer," *Optics Express*, vol. 19, pp. A64-A71, 2011
110. M. Firstenberg, K. N. Shivananda, I. Cohen, O. Solomeshch, V. Medvedev, N. Tessler, and Y. Eichen, "Harnessing "Click"-Type Chemistry for the Preparation of Novel Electronic Materials," *Advanced Functional Materials*, vol. 21, pp. 634-643, Feb 2011
111. R. Meerheim, S. Olthof, M. Hermenau, S. Scholz, A. Petrich, N. Tessler, O. Solomeshch, B. Lussem, M. Riede, and K. Leo, "Investigation of C[<sub>sub</sub>60]F[<sub>sub</sub>36] as low-volatility p-dopant in organic optoelectronic devices," *Journal of Applied Physics*, vol. 109, p. 103102, 2011
112. L. Tzabari and N. Tessler, "Shockley-Read-Hall recombination in P3HT:PCBM solar cells as observed under ultralow light intensities," *Journal of Applied Physics*, vol. 109, p. 064501, 2011
113. A. J. Ben-Sasson and N. Tessler, "Patterned electrode vertical field effect transistor: Theory and experiment," *Journal of Applied Physics*, vol. 110, Aug 15 2011

114. H. Wang, F. Li, I. Ravia, B. Gao, Y. Li, V. Medvedev, H. Sun, N. Tessler, and Y. Ma, "Cyano-Substituted Oligo(p-phenylene vinylene) Single Crystals: A Promising Laser Material," *Advanced Functional Materials*, vol. 21, pp. 3770-3777, Oct 7 2011.
115. N. Yaacobi-Gross, M. Soreni-Harari, M. Zimin, S. Kababya, A. Schmidt, and N. Tessler, "Molecular control of quantum-dot internal electric field and its application to CdSe-based solar cells," *Nat Mater*, vol. 10, pp. 974-979, 2011.

### **Submitted**

### **Review Papers**

1. N. Tessler, "Lasers based on semiconducting organic materials", *Adv. Mat.*, 11, (1999), pp. 363-370.
2. N. Tessler, "Device physics of light emitting polymers – LEDs and lasers", in "Recent research developments in physics", *Research Signpost, Trivandrum*.
3. N. Tessler, "Organic Materials Based Lasers", *Elsevier Encyclopedia of Materials: Science and Technology*
4. N. Tessler, "Organic Light Emitting Diodes", *Elsevier Encyclopedia of Materials: Science and Technology*
5. N. Tessler, Y. Preezant, N. Rappaport, and Y. Roichman," Charge Transport in Disordered Organic Materials and its Relevance to Thin Film Devices – a Tutorial Review", *Advanced Materials*, In Press

### **Book Chapters**

1. N. Tessler, "Device physics of light emitting polymers – LEDs and lasers", in "Recent research developments in physics", *Research Signpost, Trivandrum*.
2. N. Tessler, " Laser Devices from Molecular and Polymer Semiconductors ", *Elsevier Encyclopedia of Materials: Science and Technology*
3. N. Tessler, " Light Emitting Diodes from Molecular and Polymer Semiconductors ", *Elsevier Encyclopedia of Materials: Science and Technology*
4. N. Tessler & Y. Roichman, "Organic Field Effect Transistors", to be published in undergraduate text book edited by J.C. DeMello & J.J. Halls, *Elsevier*.
5. Y. Roichman, Y. Preezant, N. Rapaport, and N. Tessler, "Analysis and Modeling of Organic Devices", in *Physics of Organic Semiconductors*, edited by W. Bruetting, , ISBN 3-527-40550-X, *Wiley-VCH* (2005)
6. N. Tessler, O. Globerman, N. Rappaport, Y. Preezant, Y. Roichman, O. Solomesch, J. Veres, S. Tal, E. Gershman, M. Adler, V. Zolotarev, V. Gorelik, Y. Eichen, "Conjugated Polymer Electronics – Engineering Materials and

Devices”, in Handbook of Conducting Polymers, Ed. T.A. Skotheim and J.R. Reynolds, CRC (2006)

7.

### Patents

Year	Short Title	Inventors	Publication ref.	Owned by or licensed to
1996	Organic EL	Nick Harrison, Nir Tessler, Paul May	US6002206	Cambridge Display Technology
1998	Polymer Devices	Nir Tessler, Henning Sirringhaus, Richard Friend	EP1074048A1	Plastic Logic
1999	Optical Devices (A)	Nir Tessler, Peter Ho, Richard Friend	WO0004593A1	Cambridge Display Technology
1999	Optical Devices (B)	Peter Ho, Nir Tessler, Richard Friend	WO0003950A1	Cambridge Display Technology
2001	Near Infra-Red Composite Polymer-nanocrystal materials and electro-optical devices produced there from	Uri Banin, Nir Tessler	WO03038914A3	The Hebrew University & The Technion Institute of Technology
2003	$\pi$ -conjugated molecules	Yoav Eichen, Nir Tessler, Gadi Schuster, Shay Tal, Vlad Medvedev	WO2004039862	Peptronics
2005	Printable Materials	Yoav Eichen, Nir Tessler, Batya Blumer, Olga Solomeshch	WO/2007/020636A1	Peptronics
2005	Transistor Structures	Tessler Nir, Shenhar Roy, Globerman Oded	WO/2007/080576A1	Carbon Valley Technologies
2007	Transistor Structures And Methods Of Fabrication	Nir Tessler and Moti Margalit	USA 60/969,867	Carbon Valley Technologies
2010	Derivatized Fullerene-based dopants	Olga Solomeshch and Nir Tessler	WO2010029542A1	Technion
2010	Vertical Organic Field Effect Transistor and ..	Ariel Ben Sasoon and Nir Tessler	USA Patent Applicat. 13/259,397	Technion

**Plenary or Invited Talks**

1. International Semiconductor Device Research Symposium, U.S.A., 1995.
2. International Conference on Electroluminescence of Molecular Materials and Related Phenomena, Japan, 1997
3. Lasers and Electro Optics Society Leos-98, San-Francisco, 1997
4. Materials Research Society (MRS), San-Francisco, 1998
5. European Quantum Electronics Conference EQEC'98, Glasgo, 1998
6. European Materials Conference (E-MRS), Strasbourg, June 1999
7. Asia-Pacific Symposium on Organic Electroluminescent Materials & Devices, Hong Kong, June 1999
8. The Rank Prize meeting, Grasmere, October 1999
9. European Materials Research Society (EMRS-2000), Strasbourg, France, 2000.
10. Materials Research Society (MRS), San-Francisco, 2001
11. Optical Probes, Venice, 2003.
12. International conference on composites/nano engineering (ICCE10), New Orleans, 2003
13. European Conference on Organic Electronics and Related Phenomena, Wye, Kent, UK, 2003
14. Photonics Europe, The international society for optical engineering, Strasbourg, France, 2004
15. Gordon Conference on Electronic Processes In Organic Materials, Mount Holyoke College, MA, USA 2004
16. European Conference on Organic Electronics and Related Phenomena, Zurich, Switzerland, 2005 (Plenary talk).
17. Organic Semiconductor Conference (OSC-05), Queens College, Cambridge, UK, 2005.
18. American Vacuum Society (AVS), Boston, USA, 2005.
19. International workshop of organic electronics, Hsinchu, Taiwan, 2006
20. Cleo Europe, Munich, Germany, 2007.
21. MRS, Singapore, 2009
22. ECS meeting, Vienna, Austria, 2009
23. MRS, SF, USA 2010
24. ....

**Contributed talks:**

1. IEEE The 17th Convention of Electrical & Electronics Engineers in Israel, 1991, Tel-Aviv Israel (N. Tessler).
2. Topical Meeting on Optical Amplifiers and Their Applications, 1991, Snowmass Colorado (N. Tessler).
3. IEEE International Semiconductor Laser Conference, 1992, Takamatsu Kagawa Japan (N. Tessler).
4. IEEE International Semiconductor Laser Conference, 1992, Takamatsu Kagawa Japan (N. Tessler).

5. International Quantum Electronics Conference, 1994, Anaheim California (N. Tessler).
6. Conference on lasers and Electrooptics, 1994, Anaheim California (N. Tessler).
7. Conference on lasers and Electrooptics, 1994, Anaheim California (N. Tessler).
8. IEEE International Semiconductor Laser Conference, Hawaii, 1994 (N. Tessler).
9. IEEE International Semiconductor Laser Conference, Hawaii, 1994 (N. Tessler).
10. International Semiconductor Device Research Symposium, 1995 (N. Tessler).
11. European Conference on Molecular Electronics (ECME 96), 1996, Belgium (N. Tessler).
12. International Conference on Electroluminescence of Molecular Materials and Related Phenomena, Japan, 1997 (N. Tessler).
13. Lasers and Electro Optics Society Leos-98, San-Francisco, 1997 (N. Tessler).
14. Materials Research Society (MRS), San-Francisco, 1998 (N. Tessler)
15. European Quantum Electronics Conference EQEC'98, Glasgo, 1998 (N. Tessler)
16. European Materials Conference (E-MRS), Strasbourg, June 1999 (N. Tessler)
17. Asia-Pacific Symposium on Organic Electroluminescent Materials & Devices, Hong Kong, June 1999 (N. Tessler)
18. The Rank Prize meeting, Grasmere, October 1999 (N. Tessler)
19. European Materials Research Society (EMRS-2000), Strasbourg, France, 2000 (N. Tessler).
20. European Materials Conference (E-MRS), Strasbourg, France, 2000 (N. Tessler).
21. Materials Research Society (MRS), San-Francisco, 2001 (N. Tessler)
22. Materials Research Society (MRS), San-Francisco, 2001 (N. Tessler)
23. European Conference on Molecular Electronics (ECME 2001), Holland, 2001. (Y. Roichman)
24. International Conference on Electroluminescence of Molecular Materials and Related Phenomena, Los-Angeles, 2001 (N. Tessler)
25. International Conference on Synthetic Metals (ICSM2002), Shanghai, 2002.
26. Optical Probes, Venice, 2003.

27. International conference on composites/nano engineering (ICCE10), New Orleans, 2003
28. European Conference on Organic Electronics and Related Phenomena, Wye, Kent, UK, 2003
29. Photonics Europe, The international society for optical engineering, Strasbourg, France, 2004
30. Gordon Conference on Electronic Processes In Organic Materials, Mount Holyoke College, MA, USA 2004
31. Materials Research Society (MRS), San-Francisco, 2005 (Y. Roichman)
32. Materials Research Society (MRS), San-Francisco, 2005 (N. Rapaport)
33. Oren Tal, Yossi Rosenwaks, Yohai Roichman, Nir Tessler, Calvin K. Chan and Antoine Kahn, "Nanoscale Measurements of Electronic Properties in Organic Thin Film Transistors", in *Organic Thin-Film Electronics*, edited by A.C. Arias, N. Tessler, L. Burgi, and J.A. Emerson (Mater. Res. Soc. Symp. Proc. **871E**, Warrendale, PA, 2005), I4.5.
34. ICSM, Dublin, Ireland, 2006. (N. Rappaport)
35. ICSM, Dublin, Ireland, 2006. (N. Tessler)
36. ICSM, Dublin, Ireland, 2006. (Y. Bar)
37. Materials Research Society (MRS), San-Francisco, 2007
38. ....