

Full Publication List

Book Chapters

1. Gee A, Jaafar AH, **Kemp NT** “*Optical Memristors: Review of Switching Mechanisms and New Computing Paradigms*” in “*Memristor Computing Systems*” Editors: Leon Chua, Ronald Tetzlaff and Angela Slavova Publisher: Springer
2. Doudin B and **Kemp NT** in “*Spintronics Handbook, Second Edition: Spin Transport and Magnetism*”, Volume Three: Nanoscale Spintronics and Applications, Chapter 3: Ballistic Spin Transport, Tsymbal, E. (Ed.), Žutić, I. (Ed.). (2020). Boca Raton: CRC Press,
3. Doudin B and **Kemp NT**, “*Handbook of Spin Transport and Magnetism*”, Chapter 28 : Ballistic Spin Transport (August 25, 2011), Editors: Evgeny Tsymbal and Igor Žutić , Publishers: Chapman and Hall/CRC

In Primary Journals

4. Gee A, Jaafar AH, Brachňaková B, Massey J, Marrow C, Salitros I, **Kemp NT**, “*Multilevel Resistance Switching and Enhanced Spin Transition Temperature in Single and Double Molecule Spin Crossover Nanogap Devices*”, J Phys. Chem. C. 124(24) 13393–13399 (2020)
5. Gee A, Jaafar AH, **Kemp NT**, “*Nanoscale Junctions for Single Molecule Electronics Fabricated using Bilayer Nanoimprint Lithography combined with Feedback Controlled Electromigration*”, Nanotechnology 31(15) January 2020
6. Cheng F, Verrelli E, Alharthi FA, Satyajit D, Anthopoulos T, Lai KT, **Kemp NT**, O’Neill M, Kelly SM, “*Solution-Processable and Photopolymerisable TiO₂ Nanorods as Dielectric Layers for Thin Film Transistors*”, RSC Advances, 10, 25540 – 25546 (2020)
7. Jaafar AH, **Kemp NT**, “*Wavelength dependent light tunable resistive switching graphene oxide nonvolatile memory devices*”, Carbon 153, 81-88 (2019)
8. Jaafar AH, O’Neill M, Kelly SM, Verrelli E and **Kemp NT** “*Percolation Threshold Enables Optical Resistive-Memory Switching and Light-Tuneable Synaptic Learning in Segregated Nanocomposites*”, Adv. Elect. Mats. 5(7), 1900197 (2019)
9. Cheng F, Young AJ, Bouillard J-S.G, **Kemp NT**, Guillet-Nicolas R, Hall CH, Roberts D, Jaafar AH, Adawi AM, Kleitz F, Imhof A, Reithofer MR, Chin JM, “*Dynamic Electric Field Alignment of Metal-Organic Framework Microrods*” J. Am. Chem. Soc. 141(33) 12989-12993 (2019)
10. Namhil ZG, Kemp C, Verrelli E, Iles A, Pamme N, Adawi AM, **Kemp NT** “*A Label-Free Aptamer-Based Nanogap Capacitive Biosensor with Greatly Diminished Electrode Polarization Effects*”, PCCP 21, 681-691 (2019)
11. Jaafar AH, Gee A, **Kemp NT**, “*Nanorods vs Nanoparticles: A Comparison Study of Au/ZnO-PMMA/Au Non-volatile Memory Devices showing the importance of Nanostructure Geometry on Conduction Mechanisms and Switching Properties*”, IEEE Trans on Nanotechnology 19, 236 - 246 (2019)
12. Cheng F, Verrelli E, Alharthi FA, Kelly SM, O’Neill M, **Kemp NT**, Kitney SP, Lai KT, Mehl GH, Anthopoulos T, “*Lyotropic ‘hairy’ TiO₂ nanorods as precursors for self-assembled dielectric layers*” Nanoscale Advances, 1, 254, (2019)
13. Šuch O, Klimo M, **Kemp NT**, Škvarek O, “*Passive memristor synaptic circuits with multiple timing*

- [dependent plasticity mechanisms](#)” IJEC (AEU), **96**, 252-259 (2018)
14. Mohammed AF, Al-Jarwany QA, Clarke AJ, Amaral TM, Lawrence J, **Kemp NT**, Walton CD, “[Ablation Threshold Measurements and Surface Modifications of 193 nm Laser Irradiated 4H-SiC](#)”, Chem. Phys. Lett. **713**, 194-202 (2018)
 15. Gray RJ, Hamdiyah A Verrelli E, **Kemp NT**, “[Method to reduce the formation of crystallites in ZnO nanorod thin-films grown via ultra-fast microwave heating](#)”, Thin Solid Films, Vol. **662**(30) September 2018, 116-122 (2018)
 16. Alharthi FA, Cheng F, Verrelli E, **Kemp NT**, Lee AF, Isaacs MA, O’Neill M, Kelly, SM, “[Solution-processable, niobium-doped titanium oxide nanorods for application in low-voltage, large-area electronic devices](#)”, J. Mats. Chem. C, 5, 1038 (2017)
 17. Jaafar AH, Gray RJ, Verrelli E, O’Neill M, Kelly SM and **Kemp NT**, “[Reversible optical switching memristors with tunable STDP synaptic plasticity: a route to hierarchical control in artificial intelligent systems](#)” Nanoscale, 9, 17091 (2017)
 18. Jabarullah NH, Mauldin C, Navarro LA, Golden J, Madianos LM, **Kemp NT**, “[Modelling and Simulation Analysis for the Prediction of the Performance of Intrinsic Conducting Polymer Current Limiting Device](#)” Advanced Science Letters, 23 (6), 5117-5120 (2017)
 19. Jabarullah NH, Verrelli E, Gee A, Mauldin C, Navarro LA, Golden JH and **Kemp NT**, “[Large Dopant Dependence of the Current Limiting Properties of Intrinsic Conducting Polymer Surge Protection Devices](#)”, RSC Advances, 6, 85710-85717 (2016)
 20. Jabarullah NH, Verrelli E, Mauldin C, Navarro LA, Golden JH, Madianos LM, **Kemp NT**, “[Superhydrophobic SAM Modified Electrodes for Enhanced Current Limiting Properties in Intrinsic Conducting Polymer Surge Protection Devices](#)”, Langmuir 31(22), 6253-6264 (2015)
 21. Popa PL, **Kemp NT**, Majjad H, Dalmas G, Faramarzi V, Dayen JF, Andreas C, Hertel R, Doudin B, “[The magnetochemical switch](#)”, PNAS **111**(29), 10433-10437 (2014)
 22. Verrelli E, Gray RJ, O’Neill M, Kelly SM and **Kemp NT**, “[Microwave oven fabricated hybrid memristor devices for non-volatile memory storage](#)”, Mater. Res. Express 1(4) 046305 (2014)
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 24. Verrelli E, **Kemp NT**, O’Neill M, Cheng F, Alharthi FA, Kelly SM, “[Synthesis and Characterization of a Solution Processable Hybrid Organic-Inorganic High-K Dielectric for Low-Voltage OFET Applications](#)”, Journal of the Society for Information Display, 44(S1), 108-111 (2013)
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 27. Popa PL, Dalmas G, Faramarzi V, Dayen JF, Majjad H, **Kemp NT**, Doudin B, “[Heteronanojunctions with atomic size control using a lab-on-chip electrochemical approach with integrated microfluidics](#)”, Nanotechnology 22, 215302 (2011)
 28. Dayen JF, Faramarzi V, Pauly M, **Kemp NT**, Pichon B, Majjad H, Begin-Colin S, Doudin B, “[Nanotrench for nano and microparticle electrical interconnects](#)” Nanotechnology 33, 335303 (2010)
 29. **Kemp NT**, Majjad H, Lunca-Popa P, Dalmas G, Doudin B “[Lab-On-Chip fabrication of atomic scale magnetic junctions](#)” ECS Trans. 16 (45) 3-10 (2009)
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- [*polyaniline nanowires and fibrils*](#)” Synth. Metals 159(5-6), 435 (2009)
31. Shi S, Schmerber G, Arabski J, Beaufrand J-B, Kim DJ, Boukari S, Bowen M, **Kemp NT**, Viart N, Rogez G, Beaurepaire E, Aubriet H, Petersen J, Becker C, Ruch D, “[Study of molecular spin-crossover complex Fe\(phen\)\(2\)\(NCS\)\(2\) thin films](#)” Appl. Phys. Letts, 95(4), 043303 (2009)
 32. Lee JK, Cho JM, Shin WS, Moon SJ, **Kemp NT**, Zhang H, Lamb R, “[The stability of PEDOT:PSS films monitored by electron spin resonance](#)”, JKPS, 52(3), 621 (2008)
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 36. **Kemp NT**, Kaiser AB, Trodahl HJ, Chapman B, Buckley RG, Partridge AC, Foot PJ, “[Effect of ammonia on the temperature-dependent conductivity and thermopower of polypyrrole](#)”, J. Polym. Sci. 44(9) 1331-1338 (2006)
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 50. Liu CJ, Gao J, Kaiser AB, **Kemp NT** et al, “[YBa₂Cu₃O_{7-δ} oriented thin films and magnetically aligned ceramic - anisotropic thermopower](#)”. Physica C. 278(3-4):143-148, (1997)

Published Conference Papers

51. Jaafar AH, Gee A, Hamza AO, Eling CJ, Bouillard J.-S, Adawi AM, **Kemp NT** “[Evidence of Nanoparticle Migration in Polymeric Hybrid Memristor Devices](#)” IEEE 2020 European Conference on Circuit Theory and Design (ECCTD), Sofia, Bulgaria
52. Georgio J, Kossifos K, Antoniadis M, Jaafar A, **Kemp NT**, “[Chua Mem-Components for Adaptive RF Metamaterials](#)”, IEEE International Symposium on Circuits and Systems (ISCAS), 27-30 May, Florence, Italy (2018)
53. Georgio J, Kossifos K, Antoniadis M, Jaafar A, **Kemp NT**, “[An Optically-Programmable Absorbing Metasurface](#)”, IEEE International Symposium on Circuits and Systems (ISCAS), 27-30 May, Florence, Italy (2018)
54. Kahol PK, **Kemp NT**, and Kaiser AB, “*EPR investigations of mesoscopic disorder in polypyrrole*” American Physical Society (Seattle 2001); Bull. Am. Phys. Soc. 46, 472 (2001)
55. Bittar A, Trodahl HJ, **Kemp NT et al**, “*Preparation and characterisation of a-III N thin film materials*”, Nano-textured materials workshop; pp. 1-5, Christchurch, New Zealand (2000)

Press Articles

56. Nanowerk Spotlight Article: “[Learning in artificial synapses tuned by light](#)”, 19 June 2019 (www.nanowerk.com)
57. NanoWerk Spotlight Article: “[Reversibly controlling the learning properties of memristors via optical means](#)”, 30 Oct 2017 (www.nanowerk.com)
58. Daily News “[Tiny magnets, huge fields: Nanoscale ferromagnetic electrodes create chemical equivalent of solid-state spin valve](#)”, 31 Jul 2014 (http://www.dailynewsen.com/)
59. INP Scientific News: “Un interrupteur magnéto-électro-chimique”, 7 Aug 2014 (www.cnrs.fr)
60. NanoWerk Spotlight Article: “[A bottom-up technique for nanotechnology electronics fabrication](#)”, 27 Sept 2007 (www.nanowerk.com)
61. Nanotechnology Now: “[A bottom-up technique for nanotechnology electronics fabrication](#)”, 26 Sept 2007 (www.nanotech-now.com)

Abstracts and Short Papers

62. **Kemp NT** “*A route to hierarchical control in artificial intelligent systems: memristors with optically tunable STDP synaptic plasticity*”, 10th International Symposium on Flexible Organic Electronics (ISFOE17), 3-6 July 2017, Thessaloniki, Greece
63. **Kemp NT** “*Nanocomposite materials for low cost resistive switching memories*”, 14th International Conference on Nanosciences & Nanotechnologies (NN17), 4-7 July 2017, Thessaloniki, Greece
64. Namhil ZG, **Kemp NT** “*Nanogap Capacitive Biosensor For Label-Free Aptamer-Based Protein Detection*” Nanotech France, 28-30 June 2017, Paris, France
65. Moore J, Newton G, Verrelli E, Cheng F, Alharthi F, **Kemp NT**, Kelly SM, O’Neil M, , “Hybrid, Solution Processable and Photocrosslinkable Material Based on Titanium Dioxide Nanoparticles for Tuneable Organic Resistive Switching Memories” MRS Fall Meeting, 26 Nov – 1 Dec 2017, Boston
66. Hamdiyah A., Gray RJ, Verrelli E., **Kemp NT**, “Non-Volatile Resistive Switching Memories based on ZnO Nanorod - Polymer Hybrid Materials”, MRS Fall Meeting 28 Nov - 3rd Dec 2016, Boston, USA

67. Hamdiyah A., Gray RJ, Verrelli E., **Kemp NT**, “*Metal Nanoparticle – Polymer Hybrid Materials for Non-Volatile Resistive Switching Memories*”, 4th MemoCis Workshop, 15-17 Sept 2016, Palma, Mallorca
68. Hamdiyah A., Gray RJ, Verrelli E., **Kemp NT**, “*Non-Volatile Resistive Switching Memories based on Nanoscale Hybrid Materials*”, Integrating devices and materials: A challenge for new instrumentation in ICT, April 14-15 2016, Vilnius, Lithuania
69. Šuch O, Klimo M, Linn E, Ľapajna M, Jančovič P, Frohlich K, Hamdiyah A, Verrelli E, **Kemp NT**, “Coincidence adaptation in complementary resistive gates”, E-MRS 2016, Lille, France
70. **Kemp NT**, “*Electromigrated Nanogaps for Molecular Spintronics*”, 1st European Conference on Molecular Spintronics, 15-18 Nov 2016, Bologna, Italy
71. **Kemp NT**, “Nanoscale Materials for Novel Electronic Devices”, International Conference on Materials Chemistry, Sept 18-20 2015, Xi’an, China
72. Verrelli E, Gray RJ, Hamdiyah A, Gardner B, O’Neill M, Kelly SM, **Kemp NT**, “Hybrid Memristor Devices for Low Cost Non-Volatile Memory Storage”, International Conference on Memristive Systems, 8-10 Nov 2015, Paphos, Cyprus
73. Jabarullah NH, Mauldin C, Navarro C, Golden J, Madianos L, **Kemp NT**, “Statistical Analysis and Predictions Using Experimental Evidence for the Performance of Polymer Current-Limiting Device (CLD)”, International Conference on the Science and Engineering of Materials, 16-18 Nov 2015, Kuala Lumpur, Malaysia
74. Verrelli E, Cheng F, Alharthi F, Ibrahim M, **Kemp NT**, Kelly SM, O’Neill M, “Titanium Dioxide Nanorods: Hybrid Solution-Processable High-k Dielectrics for Organic Electronics” Materials Research Society Fall Meeting, Nov 29-Dec 4 2015, Boston, USA
75. Verrelli E, Cheng F, Alharthi F, Ibrahim M, **Kemp NT**, Kelly SM, O’Neill M, “Titanium Dioxide Nanorods: Hybrid, Solution Processable and Photocrosslinkable Resistive Switching Materials for Tuneable Organic Electronic Memories” Materials Research Society Fall Meeting, Nov 29-Dec 4 2015, Boston, USA
76. Cheng F, Verrelli E, Alharthi FA, Kitney SP, **Kemp NT**, O’Neill M, Kelly SM “*Preparation of Solution processable and Photocrosslinkable Organic-Inorganic Hybrid Material for Low-voltage OFET Applications*”, 7th International Symposium on Flexible Organic Electronics (ISFOE14), 9-12 July 2014, Thessaloniki, Greece
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79. Verrelli E, Cheng F, Alharthi F, **Kemp NT**, O’Neill M, Kelly SM, “*Functionalized Titanium Oxide Nanorods as Hybrid, Solution Processable and Photocrosslinkable Resistive Switching Materials for Organic Electronic Memories*”, MRS Fall Meeting, Nov30 - Dec 5, 2014, Boston, USA,
80. Verrelli E, Cheng F, Alharthi F, **Kemp NT**, O’Neill M, Kelly SM, “*Hybrid, Solution Processable and Photocrosslinkable High-k Dielectric based on Titanium Oxide Nanorods for Organic Electronic Applications*”, MRS Fall Meeting, Nov30 - Dec 5, 2014, Boston, USA

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82. Verrelli E, **Kemp NT**, O'Neill M, Cheng F, Alharti FA, Kelly SM, "*Solution Processable Hybrid Organic-Inorganic High-K Dielectric for Low-Voltage OFET Applications*", 9th International Conference on Organic Electronics ICOE, June 17-20, 2013 MINATEC, Grenoble, France
83. Dayen JF, Faramarzi V, **Kemp NT**, *et al* "*Nanotrench : a tool for molecular based nanodevices*" ICME 2010, Emmetten, Switzerland
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87. **Kemp NT**, Singh NK, "*Carbon Chain Propagation via Multiple Methylene Insertion Reactions of Diiodomethane on GaAs(100)*", IUVESTA 2004, Venice, Italy
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90. Trodahl HJ, Bittar A, Lanke U, **Kemp NT**, and S Granville, "*Amorphous GaN: optical conducting properties*" 25th ANZIP Condensed Matter Physics Conference 2001, Portage, New Zealand
91. **Kemp NT**, Kaiser AB, Trodahl HJ, Chapman, B. Buckley, R.G. Partridge, A.C. "*Transport in Polypyrrole in the Presence of Gases*" American Physical Society, 20-24 March 2000, Minneapolis, USA
92. **Kemp NT**, Kaiser AB *et al* "*Transport in the conducting polymer Polypyrrole*", 9th New Zealand Institute of Physics Conference, 1999, Wellington, New Zealand
93. **Kemp NT**, Kaiser AB *et al*. "*Transport in the conducting polymer Polypyrrole*", Australian and New Zealand Institute of Physics 21st Annual Condensed Matter Physics Meeting, 4-7 Feb 1997, Pakatoa Island, Hauraki Gulf, New Zealand