Dr. John V Kennedy, MRSNZ
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Citizenship: New Zealand

Academic Highlights and Work Experience:

2011 - present	**Principal Scientist and Science Leader,** Institute of Geological & Nuclear Science (GNS Science), New Zealand Crown Research Institute, Lower Hutt, Wellington, **New Zealand.**
2014	**Hon Professor,** Faculty of Science and Engineering**,** University of Waikato, Hamilton New Zealand.
2002 - 2011	**Senior Scientist and Programme Leader,** Institute of Geological & Nuclear Science (GNS Science), New Zealand Crown Research Institute, Lower Hutt, Wellington, **New Zealand**.
2001 - 2002	**Scientist,** Institute of Geological & Nuclear Science (GNS Science), New Zealand Crown Research Institute, Lower Hutt, Wellington, **New Zealand**
2000 - 2000	**Post doctoral Fellow at** Centre d'Etudes Nucléaires at Bordeaux-Gradignan (CENBG), CNRS/IN2P3**, France**
1999 - 2000	**Post doctoral Fellow at** Facultés Univ. Notre-Dame de la Paix (FUNDP), Namur**, Belgium**
1998 -1999	**Visiting Scientist at** Materials Science Division, Indira Gandhi Centre for Atomic Research (IGCAR), Government of India, Kalpakkam**,** India.
1994 - 1999	**Doctor of Philosophy** in Physics (Feb 1999); Title: 'Studies on Inner-shell ionization in metals and trace element analysis using PIXE", University of Calicut, (researched at Materials Science Division**,** Indira Gandhi Centre for Atomic Research (IGCAR), Government of India, Kalpakkam).
1997 - 1998	**Senior Research Fellow,** Indira Gandhi Centre for Atomic Research (IGCAR), Government of India, Kalpakkam,
1994 - 1997	**Junior Research Fellow,** Indira Gandhi Centre for Atomic Research (IGCAR), Government of India, Kalpakkam,
1997 - 1998	**Post Graduate Diploma in Computer Applications,** Algappa University, India
1991 - 1993	**Master of Science** in Physics from Loyola College, University of Madras, Chennai, India
1987 - 1990	**Bachelor of Science** in Physics from Madurai Kamaraj University, India

Organization / Chairperson of Professional Awards & Honours:

- ✓ Associate Editor, Science of Advanced Materials (2017)
- ✓ Associate Editor, Journal of Nanoscience and Nanotechnology
- ✓ Associate Editor, Journal of Nanoelectronics and Optoelectronics
- ✓ Visiting Professor, Nanyang Technological University, Singapore (2017)
- ✓ Chairman, 20th International Conference on Ion Beam Modification of Materials held in Wellington, New Zealand from 30 October – 4 November 2016.

- ✓ Sphearhead project leader, “Inverting Electromagnetics – a new way to measure groundwater flow” to the Science for Technological Innovation National Science Challenge (2015).
- ✓ Assessment panel member, Ministry of Business, Innovation and Employment (MBIE) (2016)
- ✓ Executive Committee member, Asia Nano Forum (ANF), New Zealand representative (2014)
- ✓ Honorary Professor, Faculty of Science and Engineering, University of Waikato (2001)
- ✓ KiwNet AJ Park Commersialisation Collaboration Award for Titanium Technologies New Zealand (TiTeNZ) (2014)
- ✓ Founding Member of Titanium Industry Development Association Inc. (2011)
- ✓ Fellow UNESCO UNISA Chair in Nanosciences/Nanotechnology (2014)
- ✓ Section Editor, Materials Science, ScienceJet journal,
- ✓ Principal Investigator, New Zealand Product Accelerator, New Zealand Manufacturing Materials Network, (2013)
- ✓ Principal Investigator, MacDiarmid Institute for Advanced Materials & Nanotechnology (2013-2016)
- ✓ Programme Leader, GNS science Core programme of Ion Beam Applications (2011)
- ✓ Editorial board member, International Journal of PIXE (2002)
- ✓ Associate Editor, International Journal on Smart Sensing and Intelligent Systems (2014)
- ✓ National Project Coordinator, IAEA-Regional Cooperative Agreement, Vienna (2009)
- ✓ Review panel member for Crotian Center of Excellence proposals (2014)
- ✓ Member of New Zealand-Korea Nanotechnology focal point programme (2011)
- ✓ Keynote speaker, 19th International Conference on Ion Beam Analysis, Celebrating 100 years of Rutherford Backscattering, University of Cambridge, UK (2009)
- ✓ Principle Investigator, New Zealand Manufacturing Materials Network, (2009-2013)
- ✓ Visiting Scientist, Loyola Institute of Frontier Energy (2008)
- ✓ Professional Membership, Royal Society of New Zealand (2001)
- ✓ Honorary Research Associate, University of Auckland (2009)
- ✓ Honorary Research Associate, Victoria University of Wellington (2008)
- ✓ PhD thesis examiner of Australian National University, Australia (2016)
- ✓ PhD thesis examiner of The University of Auckland (2008)
- ✓ PhD thesis examiner of Victoria University of Wellington (2008)
- ✓ PhD thesis examiner of University of Canterbury, Christchurch (2011)
- ✓ PhD thesis examiner of University of South Australia, Adelaide, Australia (2011)
- ✓ PhD thesis examiner of Universiteit Stellenbosch, South Africa (2009)
- ✓ PhD thesis examiner of The University of the Witwatersrand, Johannesburg, South Africa (2010)
- ✓ Project review committee member of Romanian National Council for Scientific Research (2010)
- ✓ PhD thesis examiner of Anna University, India (2008)
- ✓ PhD thesis examiner of Madras University, India (2005)
- ✓ PhD thesis examiner of SRM University, India (2010)
- ✓ Expert Reviewer, Elsevier Materials Science and Engineering Journals (2002)
- ✓ Expert Reviewer, American Institute of Physics Journals (2009)
- ✓ Member, Light Alloy Manufacturing of New Zealand (2007)
- ✓ Founding member, Material Research Society of New Zealand (2006)
- ✓ Member, Australian Research Council Nanotechnology Network (2006)
- ✓ Member, Microscopy New Zealand (2006)
- ✓ Member New Zealand Institute of Physics (2006)
- ✓ Member, New Zealand Association of Scientists (2001-)
- ✓ Foreign Faculty Research Grant, Australian Institute of Nuclear Science and Engineering, Australia (2007, 2009, 2010)
- ✓ Travel award, Royal Society of New Zealand under BRAP/ISAT linkages fund 2001 & 2004.
- ✓ Award for Encouragement of Research in Materials Science (IUMRS-ICEM 2012, Symposium D-3: Innovative Material Technologies Utilizing Ion Beams), Yokohama, Japan
- ✓ Student (Jerome Leveneur) Award in recognition of the best student paper presented during the 19th International conference on Ion Implantation Technology (2012), Valladolid, Spain

- ✓ MacDiarmid Prize for Best Materials Science Poster during the School of Chemical Sciences Research Showcase (2011), Auckland, New Zealand
- ✓ Student (Peter P. Murmu) Bursary to attend WUNSPIN conference in Sydney, Australia

Recognition:

(a) International Advisory Board Member

1. International Advisory Committee, Indian Chemical Engineering Congress 2016 (CHEMCON 2016), http://www.chemcon2016.com/, Chennai, India.
2. International Advisory Board Member of 3rd International Conference on Nanoscience and Nanotechnology: ICONN 2015, 4-6 Febuary 2015, Chennai, India.
3. Organising Committee member of 11th Asia-Pacific Conference on Materials Processing (www.APCMP2014.org), Auckland, New Zealand, July 6-11, 2014.
4. Organising Committee member of Seventh International Conference on Sensing Technology (ICST), 3-5 December 2013, Wellington, New Zealand.
5. International Advisory Board Member of International Conference on Advanced Materials (ICAM 2012), January 5-7, 2012, Chennai, India.
6. International Advisory Board Member of International Conference on Nanoscience and Nanotechnology (ICONN-2013), March 18-20, 2013 at SRM UNIVERSITY, Chennai, India.
7. International Advisory Board Member of International Conference on Thin Films & Applications (ICTFA – 2013). SASTRA University, Thanjavur, India, 11-13 September 2013.
8. Chair, International Advisory Board Member of International symposium on BIOPIXE (2005).

(b) Invited Presentations & Seminars/International:

1. Kennedy, J.V.; International Symposium on Emerging Advanced Nanomaterials: ISEAN-2016, 27th of June 2016:
2. Kennedy, J.V.; IEEE technical talk “Ion beam Technology for surface engineering and material characterization”, 6th August 2015, Research Techno Plaza (RTP), XF02-05 (Level 2 Seminar Room), NTU, 50 Nanyang Drive, Singapore 637553.
3. Kennedy, J.V.; “Tailored Surfaces: interfacial modifications to control adhesion”, 5th Molecular Materials Meeting: M3 conference, 2-5 August 2015, Singapore.
4. Kennedy, J.V.; “Nanostructured materials for magnetic sensor”. 3rd International Conference on Nanoscience and Nanotechnology: ICONN 2015, 4-6 Febuary 2015, Chennai, India.
5. Kennedy, J.V.; Murmu, P.P.; Ruck, B.J.; Williams, G.V.M. 2015. Electronic, magneto transport and magnetic properties of Gadolinium doped zinc oxide. p. 38 In: 3rd International Symposium on Semiconductor Materials and Devices (ISSMD-3, 2015), 02-05 February, 2015. Chennai: Anna University
6. 11th Asia-Pacific Conference on Materials Processing (www.APCMP2014.org), Auckland, New Zealand, July 6-11, 2014.
7. IEEE 2014 Sensors Applications Symposium, February 18-20, 2014, Queenstown, New Zealand
8. International Titanium Powder Processing Consolidation and Metallurgy Conference, 2-4 December 2013, Hamilton, New Zealand
9. Seventh International Conference on Sensing Technology (ICST2013), December 3-5, 2013, Wellington, New Zealand
10. International Conference on Thin Films & Applications (ICTFA – 2013) SASTRA University, Thanjavur, India, September 11-13, 2013.
11. The 8th Pacific Rim International Conference on Advanced Materials and Processing, August 4-9, 2013, Waikoloa, Hawaii, USA
12. 21st International Conference on Ion Beam Analysis (IBA – 2013), June 23-28, 2013 at the Marriott Waterfront in Seattle, Washington, USA.
13. International Conference on Nanoscience and Nanotechnology (ICONN-2013) held during March 18-20, 2013 at SRM UNIVERSITY, Chennai, India

14. International Conference on Advanced Materials (ICAM 2012), January 5-7, 2012, Loyola College, Chennai, India.
15. International Conference on Frontiers in Materials Science for Energy and Environment (ICFMS 2012), January 11-13, 2012, Loyola College, Chennai, India.
16. Application of accelerators in research and industry: twenty-second international conference, Ft. Worth, TX, USA, 5-10 August, 2012
17. International conference on emerging advanced nanomaterials will be held during October 22-25th 2012 in Mercure Hotel, Brisbane, Australia
18. 20th International Conference on Ion Beam Analysis (IBA – 2011) Itapema, Brazil
19. Advanced Materials and Nanotechnology (AMN-5) February 7-11, 2011, New Zealand
20. Electronic Materials Conference, Indiana, USA, June 2010
21. 7th International Symposium on Atomic Level Characterizations for New Materials and Devices '09 (ALC'09), Maui, Hawaii, USA, December 6-11, 2009.
22. 14th New Zealand Institute of Physics Conference (NZIP 2009), July 5-9, 2009, New Zealand.
23. 19th Ion beam analysis (IBA-18) conference, September 6-14, 2009, Cambridge University, England, UK
24. IAEA-RCA project planning meeting, KL, Malaysia, June 22-26, 2009
25. Fourth international conference on advanced materials and nanotechnology (AMN4), February 9-13, 2009, Dunedin, New Zealand
26. International Conference on "Recent Trends in Sensor – Development for the Assessment and Management of the Environment", Loyola College, Chennai, India, January 8-10, 2009
27. Indo-US Workshop On Visible and Ultraviolet Sources for Solid State Lighting and Water Purification, Crystal Growth Centre, Anna University, Chennai, India, January 5-7, 2009
28. 5th International Conference on advanced materials Development and performance (AMDP 2008), Beijing, China, October 12-16, 2008
29. RCA/UNDP Project Stakeholder Workshop for the Post-Tsunami Environment Impact Assessment, held in Colombo, Sri Lanka, August 18-21, 2008
30. 6th BIOPIXE symposium, Richland, WA, USA, June 16-21, 2008
31. International conference on Ion Implantation Technology (IIT2008), Montery, CA, USA, June 8-13, 2008
32. SPIE, Microelectronics, MEMS and Nanotechnology conference, December 4-6, 2007, Canberra, Australia.
33. 15th AINSE conference on Nuclear and Complementary Techniques of Analysis & 9th Vacuum Society of Australia Congress, November 20-23, 2007, Melbourne, Australia.
34. 18th Ion beam analysis (IBA-18) conference, September 23-28, 2007, Hyderabad, India.
35. 13th New Zealand Institute of Physics Conference (NZIP2007), July 4-6, 2007, Dunedin, New Zealand.
36. Third international conference on advanced materials and nanotechnology (AMN3), February 11-16, 2007, Wellington, New Zealand.
37. 10th International conference on Nuclear Microprobe Technology and Applications (ICNMTA2006), July 9-14, 2006, Singapore.
38. International workshop on Crystal Growth and Characterisation of advanced materials, January 9-13, 2006, Chennai, India.
39. 14th Australian Conference on Nuclear and Complementary Techniques of Analysis & 8th Vacuum Society of Australia Congress, November 20-22, 2005, Wellington, New Zealand.
40. Australian Synchrotron user workshop meeting, December 5-7, 2005, Melbourne, Australia.
41. 4th International Conference on advanced materials Development and performace (ADMP05), July 11-13, 2005, Auckland, New Zealand.
42. 2nd International conference on Advanced materials and nanotechnology (AMN2), February 7-11, 2005, Queenstown, New Zealand.
43. 5th BIOPIXE symposium, January 17-21, 2005, Wellington, New Zealand.
44. 3rd International workshop on ZnO & related compounds, October 5-8, 2004, Sendai, Japan.

45. International conference on Materials for advanced technologies (ICMAT2003) and IUMRS-ICA2003, December 2003, Singapore.
46. 13th Nuclear Techniques & 8th Vacuum Society of Australia Congress, AINSE, Sydney, Australia, November 2003.
47. Joint technical conference of society of chemical engineers of NZ, Food engineer's association of NZ, Engineering materials group of NZ, July 2003, New Zealand.
48. An International conference on Advanced materials and Nanotechnology (AMN1), February 2003, New Zealand.
49. 8th International Conference on Nuclear Microprobe Technology and Applications (ICNMTA2002), TAKASAKI, Japan, September 8 -13, 2002.
50. 13th International conference on Ion beam modification of materials (IBMM2002), Kobe, Japan, September 1-6, 2002.
51. 4th International Symposium on BIOPIXE, April 15-19, 2002, Mexico City, Mexico.
52. 15th Ion beam analysis (IBA-15) conference, July 2001, Cairns, Australia.
53. 10th National Institute of Physics conference, June 2001, Wellington, New Zealand.
54. International workshop on advanced materials produced and analysed by ion beams, June 2001, Wellington, New Zealand.
55. International conference on Nuclear Microprobe and its applications, September 2000, Bordeaux, France.
56. 3rd International conference on BIOPIXE, November 1999, Kyoto, Japan
57. 14th Ion beam analysis (IBA-14) conference, July 1999, Dresden, Germany.
58. 8th International conference on PIXE and applications, June 1998, Sweden.
59. International conference on Environment and bioethics, January 1999, Chennai, India.
60. National Conference on X-ray Spectroscopy and Allied areas, November 1998, Ratlam, India.
61. National Conference on Physics and Technology of Particle Accelerator and Applications (PATPAA-96), November 1996, Calcutta, India.
62. DAE Symposium on Solid State Physics, December 1994, Jaipur, India.

(c) Service to Professional Groups/ Present and Past Associations Group Members

Present Post docs: Dr. Peter P. Murmu, Dr. Jeremy Smith, Dr. K. Kaviyarasu
Present PhD Students: Mr. Pierre Couture, Ms. Fengqian Zhang, Mr. Thomas Loho, Ms. Ruckmini Gorthy, Mr. Vishnu Charan Kuduva Janarthanan,
Former Post Doctoral Researchers: Dr. Mario Rudolphi, Dr. Steve Johnson, Dr. Toby Hopf,
Former PhD Students and Master students: Miss. Tushara Prakash, Miss. Sharidah A. Aziz, Mr. Omer Chaudhary, Mr. David Framil Carpeño, Mr. Patrick Sittisart**,** Mr. Peter P. Murmu, Mr. Jérôme Leveneur, Mr. Prasanth Gupta, Mr. Baptiste Guegan, Mr. Krishna Kant, Mr. Ethan Lankshear, Mr. Ben Deeble, Mr. Aamir Iqbal, Miss. Pooja Anilkumar, Miss. Marilyne Langlois, Mr. Jerome Caule, Mr. Domenico Hartnack, Mr. Clement Beaufils, Mr. James Turner, Miss. Julia Rusterucci, Mr. Lewis Hensman, Mr. Kieran Carnegie, Mr. Daniel Guppy, Mr. Xavier Weertz, Mr. Abhishek Vadnerkar, Miss. Nathalie Goulley, Mr. Steve Kupke, Miss. Weiying Zhou, Miss. Carline Bakker, Mr. Ryan Moody. Mr. Elliort Buckley,

Research Activities:

- **Nanotechnology:** Nanofabrication, Synthesis and assembly of nanostructures of desired size, shape and properties using physical and chemical methods, nanostructured materials and interfaces for applications in electronics and energy, metal and metal oxide nanoparticles, magnetic nanoparticles, Preparation and characterisation (IBA, XRD, TEM, XANES,XPS, MEIS,SQUID, Raman) of nanocrystaline thin films for optoelectronics, fabrication of semiconductor nanostructures and nanoclusters, Sensor prototype development. Photocatalytic and Antibacterial investigations.

- **Materials Science and Engineering**: - Thin films, Metal oxide semiconductors, Sensors, Materials Engineering, Interface bonding, structure-property relationship, Smart surfaces, Multiferroics,

Superconductivity. Surface modification, Functional coatings, ion implantation into advanced materials, Group III nitride and oxide semiconductors, Ferroelectrics, Thermoelectrics.

- **Modern Physics**: - Ion Beam Analysis, Nuclear spectroscopy, Air particulates, Technical development of ion beam techniques PIXE, RBS, NRA, Nuclear Microprobe studies, High vacuum technology, Biological specimen preparation, Study of substance composition, applied nuclear Spectroscopy; Trace element analysis using PIXE for industrial, biological and geological materials.

- **Commercialisation:** Manufacture and Production Engineering; Business Case development, Intellectutal Property management, Patent application writing, Project Management;

Research Achievements:

- Established new functional coating systems for additive manufactured products
- Developed sensing materials for environmental monitoring, high security, safety and communication devices
- Applied ion implantation technique to produce new materials and create a new property like optical, electrical in various semiconducting materials.
- Developed new method to synthesie metal oxide nanoparticles using arc discharge.
- Discovered large positive magneto resistance materials for magnetic sensor applications.
- Developed and commercialised zinc oxide nanostructures based gas sensors.
- Discovered new methodology to produce p-type ZnO for UV-blue light emission applications using ion implantation and electron beam annealing.
- International and NZ patent applications and patents on new materials development
- Determination of the key elements in the ion implanted nanoporous materials using a focused deuteron beam for biomedical applications.
- Applied ion beam analysis to characterise any form of materials such as thin films, solid, water and air.

Research Grants and Contracts:

[14]. Ministry of Business, Innovation and Employment (MBIE) Pre-Seed Acceleator Fund (CO5X1506): *"Novel anti-adhesion surfaces for the dairy industry"*; Principal Investigator, $32300.00; 2015; Contribution: 100%.

[13] Ministry of Business, Innovation and Employment (MBIE) Pre-Seed Acceleator Fund (CO5X1413): *"Fuel gage flow meter"*; Principal Investigator, $32300.00; 2015; Contribution: 100%.

[12] Marsden grant (14-GNS-016) from Royal Society of New Zealand: *"Nano-thermoelectric generators"*; Leader and Principal Investigator, $799,250.00; 2015-2018; Contribution: 100%.

[11] Ministry of Business, Innovation and Employment (MBIE) grant (CO5X1404): *"Next generation nano-electronics"*; Principal Investigator, $1,150,000.00; 2014-2016; Contribution: 50%.

[10] Ministry of Business, Innovation and Employment (MBIE) grant (UOWX1409): *"TiTeNZ-Titanium Technologies New Zealand"*; Principal Investigator, $14,490,000.00; 2014-2020; Contribution: 10%.

[09] Ministry of Business, Innovation and Employment (MBIE) grant (UOAX1309): "The Product Accelerator"; Principal Investigator, $14,621,034.00; 2013-2017; Contribution: 20%.

[08] Ministry of Business, Innovation and Employment (MBIE) grant (UOWX1203): *"New Zealand Titanium Technology Platform"*; Principal Investigator, $5,750,000.00; 2012-2014; Contribution: 20%.

[07] Ministry of Business, Innovation and Employment (MBIE) grant (CO8X01206): *"Magnetic Devices"*; Co-leader and Principal Investigator, $4,485,000.00; 2012-2016; Contribution: 50%.

[06] Foundation for Research, Science and Technology (FRST) grant (UOAX0809): *"The Materials Accelerator"*; Principal Investigator, $11,979,660.00; 2009-2014; Contribution: 20%.

[05] Foundation for Research, Science and Technology (FRST) grant (CO5X0802): *"Devices from magnetic bands";* Leader and Principal Investigator, $1,600,000.00; 2008-2012; Contribution: 100%.

[04] Foundation for Research, Science and Technology (FRST) grant (CO5X0408): *"Ion and electron beam synthesised semiconductor nanostructures for nanotechnology applications"*; Co-leader and Principal Investigator, $3,915,000.00; 2004-2010; Contribution: 50%.

[03] Foundation for Research, Science and Technology (FRST) grant (CO5X0407): *"Sustaining Ion-beam and Mass-spectrometry Capabilities"*; Co-leader and Principal Investigator, $4,286,250.00; 2004-2010; Contribution: 25%.

[02] Marsden grant (UOA0411) from Royal Society of New Zealand: *"Highly conductive p-type ZnO"*; Co-leader and Principal Investigator, $800,808.00; 2005-2007; Contribution: 50%.

[01] Foundation for Research, Science and Technology (FRST) grant (CO5X0211): *"Characterisation of advanced materials for Nanotechnology";* Co-leader and Principal Investigator, $1,600,000.00; 2002-2008; Contribution: 100%.

Industrial Contracts:

1. Stafford Engineering, Hamilton: "Anti fouling surfaces"; $50,000.00;
2. Gallagher Group Ltd: "Magnetic nanoparticle based sensor technology"; $100,000.00;
3. Tait communications: "Communication sensor"; $10,000.00;
4. Aeroqual ltd: "Micro fabricated gas sensor"; $120,000.00;
5. Temperzone Ltd: "Provided a technical expertise to their new electric control development and heat exchange issues"; $25000.00.
6. Page & Macrae Ltd: "Commercial ion source for coating", $50,000.00;
7. Titanox Ltd: "Investigated the impurity analysis of their Ti powder production technology" $10,000.00;
8. Britesite (NZ) Ltd: "Developed new reflective coatings for their polycarbonate retroreflective pavement marker"; $10,000.00;
9. IZON Ltd: "Improved hardness using ion beam surface treatment of tungsten tips used to push through polyurethane membranes to make nanopores"; $10,000.00;
10. Footfalls and Heartbeats Limited, UK: "Ion beam based process to improve the conductivity of their patented textiles".
11. Navico Asia Ltd: "Magnetic sensors for Navigation applications"
12. Genicom Ltd, Korea: "Commercial working relationship to develop a ZnO based UV photo detecters";
13. ESR Ltd: "Ion Beam modification of filters used for virus concentration in virus survey"; $80,000.00.
14. AMSC, USA: "Provided IBA results through IRL to understand F and Li roles in their HTS coated conductor's development"; $50,000.00.
15. Protemix Corporation, USA: "Tissue analysis"; $80,000.00;

16. Wellington Regional Council (WRC); "Commercial contract for water particulate analysis with PIXE"; $25,000.00

Patent Disclosure:

[19] **JV Kennedy,** RJ Futter, F Fang, A Markwitz, **Zinc oxide nanostructures and sensors using zinc oxide nanostructures**, US Patent 9,309,128.
[18] **JV Kennedy**, J Leveneur, GVM Williams, **WIDE DYNAMIC RANGE MAGNETOMETER**, US Patent 20,150,323,615
[17] **Kennedy, J.V.**; Markwitz, A. **"Magnetic nanoclusters**" US Patent No. 8872615, 28 October 2014.
[16] **Kennedy, J.V.**; Leveneur, J.; Williams, G.V.M. "**Wide dynamic range magnetometer",** WO 2014097128 A1, June 2014.
[15] **Kennedy, J.V.**; Leveneur, J.; Williams, G.V.M.; Futter, R.J. 2013 **"A magnetometer"**, WO2013/154440 A1, October 2013.
[14] **Kennedy, J.V.**; Markwitz A. **"Magnetic nanoclusters**" US Patent 20,130,147,586, June 2013.
[13] **Kennedy, J.V.**; Leveneur, J.; Williams, G.V.M. "**A magnetometer**", 2012 Provisional Patent 599332, New Zealand,
[12] **Kennedy, J.V.**; Futter, R.J.; Fang, F; Markwitz A. 2012 "**Zinc Oxide Nanostructures and Sensors Using Zinc Oxide Nanostructures**" EP Patent 2, 419, 372.
[11] **Kennedy, J.V.**; Futter, R.J.; Fang, F; Markwitz A. "**Zinc Oxide Nanostructures and Sensors Using Zinc Oxide Nanostructures**" US Patent App. 13/264, 225
[10] **Kennedy, J.V.**; Markwitz A. 2011"**Magnetic nanoclusters**" WO 2011/149, 366 A1.
[09] **Kennedy, J.V.**; Markwitz A. "**Magnetic nanoclusters**" 2010, New Zealand patent application 585780,
[08] **Kennedy, J.V.**; Futter, J.; Fang, F; Markwitz A. 2010 "**Zinc oxide nanostructures**", WO/2010/120,196
[07] **Kennedy, J.V.**; Markwitz A. "**Zinc oxide materials and methods for their application**", Japan Patent application 2009-504143
[06] **Kennedy, J.V.**; Futter, J.; Fang, F; Markwitz A,"**Zinc oxide nanostructures**", New Zealand patent application No. 576207
[05] Markwitz A; **Kennedy, J.V.**; 2007, "**Selective surface modification of aluminium, magnesium and aluminium and magnesium alloys**", New Zealand provisional Patent NZ 578975
[04] **Kennedy, J.V.**; Markwitz A. 2007. "**Zinc oxide materials and methods for their application**", United States patent application 12/296, 326
[03] **Kennedy, J.V.**; Markwitz A. 2008. "**Zinc oxide materials and methods for their application**", European Patent EP07747701
[02] **Kennedy, J.V.**; Markwitz A. 2007. "**Zinc oxide materials and methods for their application**", PCT International patent WO2007/117, 158 A1.
[01] **Kennedy, J.V.**; Markwitz A. 2007 "**Zinc oxide materials and methods for their application**", New Zealand Patent Application No 542917, 2005-10-14.

List of Papers, Books, and Patents Published/Communicated Books:

[3] Kaviyarasu, K.; Manikandan, E.; **Kennedy, J.V**.; Ladchumananandasiivam, R.; Gomes, U.U.; Maaza, M.; Mola, G.T. 2016. Improved, photon conversion efficiency of (SnO2) doped cesium oxide (Cs) nanofibers for photocatalytic application under solar irradiation. p. 113-128; doi: 10.1007/978-3-319-46601-9_14 In: Oral, A.Y.; Oral, B.; Banu, Z. (eds.) 3rd International Multidisciplinary Microscopy and Microanalysis Congress (InterM) : Proceedings, Oludeniz, Turkey, 19-23 October 2015. *Springer. Springer Proceedings in Physics 186*.
[2] **Kennedy, J.V**.; Markwitz, A.; Johnson, P.B.; Varoy, C.R.; Short, K.T. 2004. Microprobe analysis of light elements in nanoporous surfaces produced by helium ion implantation. p. 75-81 In: Ion beam techniques for the analysis of light elements in thin films, including depth profiling: final report of

a co-ordinated research project 2000-2003. Vienna: International Atomic Energy Agency. *IAEA-TECDOC 1409*.

[1] Markwitz, A.; **Kennedy, J.V.**; Dytlewski, N.; Pelicon, P.; Vickridge, I.C. 2004. Depth profiling of light elements in CVD and PECVD Si3N4 films and anodically oxidized tantalum with heavy ion time-of-flight elastic recoil detection. p. 69-73 In: Ion beam techniques for the analysis of light elements in thin films, including depth profiling: final report of a co-ordinated research project 2000-2003. Vienna: International Atomic Energy Agency. *IAEA-TECDOC 1409*.

Peer Reviewed Publications:

[202]. Prakash, T.; Williams, G.V.M.; **Kennedy, J.V.** 2017. Synthesis of magnetic nanoparticles by low-energy dual ion implantation of iron and nickel into silicon dioxide followed by electron beam annealing. *International journal of nanotechnology, 14(1-6):* 348-355; doi: 10.1504/IJNT.2017.082455

[201]. Zhang, Y.; Ingham, B.; Leveneur, J.; Cheong, S.; Yao, Y.; Clarke, D.J.; Holmes, G.; **Kennedy, J.V.**; Prabakar, S. 2017. Can sodium silicates affect collagen structure during tanning? Insights from small angle X-ray scattering (SAXS) studies. *RSC Advances, 7:* 11665-11671; doi: 10.1039/C7RA01160A

[200]. Khamlich, S.; Abdullaeva, Z.; **Kennedy, J.V.**; Maaza, M. 2017. High performance symmetric supercapacitor based on zinc hydroxychloride nanosheets and 3D graphene-nickel foam composite. *Applied Surface Science, 405:* 329-336; doi: 10.1016/j.apsusc.2017.02.095

[199]. Kaviyarasu, K.; Kanimozhi, K.; Matinise, N.; Magdalane, C.M.; Mola, G.T.; **Kennedy, J.V.**; Maaza, M. 2017. Antiproliferative effects on human lung cell lines A549 activity of cadmium selenide nanoparticles extracted from cytotoxic effects : investigation of bio-electronic application. *Materials Science & Engineering. C, Materials for Biological Applications, 76:* 1012-1025; doi: 10.1016/j.msec.2017.03.210

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