Alvin ORBAEK WHITE, PhD, MRSC, FHEA, AMIChemE

Founder and CEO of TrimTabs Ltd
Dr.orb @ trimtabs . ltd
Swansea University Staff Page
Honorary Associate Professor
LinkedIn
Energy Safety Research Institute (ESRI)
ORCiD

EDUCATION

2007 - 2013	**Rice University, Houston TX, USA** Ph.D. in Chemistry, Chemistry Graduate Program, GPA: 4.08 Master of Arts, Chemistry Graduate Program, GPA: 3.91
2006	**International Space University, Strasbourg, France** Certificate in Space Studies
1999 - 2003	**National University of Ireland Galway, Galway, Ireland** B.Sc. Experimental Physics, 2nd class honours grade 1

PROFESSIONAL APPOINTMENTS

2023 – present	**TrimTabs Ltd, Swansea, United Kingdom** Founder and Chief Executive Officer
2023 – present	**Swansea University, Swansea, Wales, United Kingdom** Honorary Associate Professor of Chemical Engineering
2022 – 2023	**Swansea University, Swansea, Wales, United Kingdom** Associate Professor of Power Distribution Materials, Chemical Engineering
2021 – present	**C6 Consultancy Ltd, Swansea, United Kingdom** Founder and Director
2016 – 2022	**Swansea University, Swansea, Wales, United Kingdom** Senior Lecturer of Power Distribution Materials, Chemical Engineering
2019 – 2022	**TrimTabs Ltd, Swansea, United Kingdom** Founder and Director
2014 – 2016	**Massachusetts Institute of Technology, Cambridge, MA, USA** Postdoctoral Associate, Department of Mechanical Engineering

FELLOWSHIPS

2017 – 2020 **Sêr Cymru II Fellow (£206,500)**
European Regional Development Fund (ERDF) and Welsh Government

RESEARCH INTERESTS

1. Synthesis and applications of functional materials for a secure energy future
2. Integrating the nexus of solutions towards sustainable energy supply and demand

PUBLICATIONS

Peer-reviewed Journal Articles

1. Alvarez, N.T.; **Orbaek, A.**; Barron, A.R.; Tour, J.M.; Hauge, R.H. Dendrimer-Assisted Self-Assembled Monolayer of Iron Nanoparticles for Vertical Array Carbon Nanotube Growth. *ACS Appl. Mater. Interfaces* **2010**, *2*, 15-18.

2. Alvarez, N.T.; Hamilton, C.E.; Pint, C.L.; **Orbaek, A.**; Yao, J.; Frosinini, A.L.; Barron, A.R.; Tour, J.M.; Hauge, R.H. Wet Catalyst-Support Films for Production of Vertically Aligned Carbon Nanotubes. *ACS Appl. Mater. Interfaces* **2010**, *2*, 1851-1856.

3. Griffiths, S.M.; Singh, N.; Jenkins, G.J.S.; Williams, P.M.; **Orbaek, A.W.**; Barron, A.R.; Wright, C.J.; Doak, S.H. Dextran Coated Ultrafine Superparamagnetic Iron Oxide Nanoparticles: Compatibility with Common Fluorometric and Colorimetric Dyes. *Anal. Chem.* **2011**, *83*, 3778-3785.

4. **Orbaek, A.W.**; Owens, A.C.; Barron, A.R. Increasing the Efficiency of Single Walled Carbon Nanotube Amplification by Fe–Co Catalysts Through the Optimization of CH_4/H_2 Partial Pressures. *Nano Letters* **2011**, *11*, 2871-2874. https://doi.org/10.1021/nl201315j

5. Alley, N.J.; Liao, K-S.; Andreoli, E.; Dias, S.; Dillon, E.P.; **Orbaek, A.W.**; Barron, A.R.; Byrne, H.J.; Curran, S.A. Effect of carbon nanotube-fullerene hybrid additive on P3HT:PCBM bulk-heterojunction organic photovoltaics. *Synthetic Metals* **2011**, *162*, 95-101.

6. Majumder, M.; Rendall, C.S.; Eukel, J.A.; Wang, J.Y.L.; Behabtu, N.; Pint, C.; Liu, T.Y.; **Orbaek, A.W.**; Mirri, F.; Nam, J.; Barron, A.R.; Hauge, R.H.; Schmidt, H.K.; Pasquali. M. Overcoming "Coffee-Stain" Effect by Compositional Marangoni Flow Assisted Drop-Drying. *J. Phys. Chem. B* **2012**, *22*, 6536–6542.

7. **Orbaek, A.W.**; Barron, A.R. Complications pertaining to the detection and characterization of individual and embedded single walled carbon nanotubes by scanning electron microscopy. *Nanoscale* **2013**, *5*, 2790-2797.

8. **Orbaek, A.W.**; Barron, A.R. Towards a 'catalyst activity map' regarding the nucleation and growth of single walled carbon nanotubes. *J. Exp. Nanosci.* **2013**, *10*, 1, 66-76.

DOI:10.1080/17458080.2013.794979.

9. **Orbaek, A.W.**; Owens, A. C.; Crouse, C.A.; Pint, C. L.; Hauge, R. H.; Barron, A.R. Single walled carbon nanotube growth and chirality dependence on catalyst composition. *Nanoscale* **2013**, *5*, 9848-9859.

10. **Orbaek, A.W.**; Aggarwal, N.; Barron, A.R. The development of a 'process map' for the growth of carbon nanomaterials from ferrocene by injection CVD. *J. Mater. Chem. A*, **2013**, *1*, 14122-14132 https://doi.org/10.1039/C3TA13543H

11. Maguire-Boyle, S.J.; Garner, D.J.; Heimann, J.E.; Gao, L.; **Orbaek, A.W.**; Barron, A.R. Automated method for determining the flow of surface functionalized nanoparticles through a mineral formation using plasmonic silver nanoparticles. *Environ. Sci.: Processes Impacts* **2014**, *16*, 220–231.

12. Andreoli, E; Suzuki, R; **Orbaek, A.W.**; Bhutani, M.S.; and Barron, A.R. Preparation and Evaluation of SWNT-PEI as Vectors for Pancreatic Cancer Treatment. *J. Mater. Chem. B*, **2014**, *2*, 4740-4747.

13. **Orbaek, A.W.**; Morrow, L.E.; Maguire-Boyle, S.J.; Barron, A.R. Reagent control over the composition of mixed metal oxide nanoparticles. *J. Exp. Nanosci*. **2015**, *10*, 5, 324-349.

14. **Orbaek, A**; McHale, M; Barron, A. Synthesis and Characterization of Silver Nanoparticles for an Undergraduate Laboratory. *J. Chem. Educ.* **2015**, *92* (2), 339–344.

15. Corr, S. J.; Raoof, M.; Cisneros, B. T.; **Orbaek, A. W.;** Cheney, M. A.; Law, J. J.; Lara, N. C.; Barron, A. R.; Wilson, L. J.; Curley, S. A. Radiofrequency Electric-Field Heating Behaviors of Highly Enriched Semiconducting and Metallic Single-Walled Carbon Nanotubes. *Nano Res* **2015**, *8* (9), 2859–2870.

16. Zhao, H; Wie, J.J.; Copic, D.; Oliver, C.R.; **Orbaek White, A.**; Kim, S.; and Hart, A.J. High-fidelity replica-molding of glassy liquid crystalline polymer microstructures. *ACS Appl. Mater. Interfaces* **2016**, *8* (12), 8110-8117.

17. Jinjing, Li.; Bedewy.; **Orbaek White, A.**; Polsen, E.S.; Tawfick, S.; and Hart, A.J. Highly Consistent Atmospheric Pressure Synthesis of Carbon Nanotube Forests by Mitigation of Moisture Transients. *J. Phys. Chem. C* **2016**, *120* (20), 11277-11287.

18. Barnett, C.J.; Gowenlock, C.E.; Welsby, K.; **Orbaek White, A.**; and Barron, A.R. Spatial and Contamination-Dependent Electrical Properties of Carbon Nanotubes. *Nano Lett.* **2018**, 18 (2), 695-700.

19. Barnett, C. J., Evans, C., McCormack, J. E., Gowenlock, C. E., Dunstan, P., Adams, W., **Orbaek White, A**. and Barron, A. R. Experimental Measurement of Angular and Overlap Dependence of Conduction between Carbon Nanotubes of Identical Chirality and Diameter. *Nano Letters*, **2019**, 19 (8), 4861–4865 https://doi.org/10.1021/acs.nanolett.9b00025

20. Hedayati, A.; Barnett, C.J.; Swan, G.; **Orbaek White, A**. Chemical Recycling of Consumer-

Grade Black Plastic into Electrically Conductive Carbon Nanotubes. *C*. **2019**, *5* (2), 32 https://doi.org/10.3390/c5020032

21. Nicholas T. Dee, Jinjing Li, **Alvin Orbaek White**, Christine Jacob, Wenbo Shi, Piran R. Kidambi, Kehang Cui, Dmitri N. Zakharov, Nina Z. Janković, Mostafa Bedewy, Jennifer Carpena-Núñez, Benji Maruyama, Eric A. Stach, Desiree L. Plata, and A. John Hart. Carbon-Assisted Catalyst Pretreatment Enables Straightforward Synthesis of High-Density Carbon Nanotube Forests. *Carbon*, **2019** (153), 196-205 https://doi.org/10.1016/j.carbon.2019.06.083

22. **Alvin Orbaek White**. Weighing up the Future. The Mass Balance, the Circular Economy and Chemical Recycling. *Academic J Eng. Stud*. **2020**, 1 (2). AES.000508.2020. (https://crimsonpublishers.com/aes/pdf/AES.000508.pdf)

23. Barnett, C. J.; McCormack, J. E.; Deemer, E. M.; Evans, C. R.; Evans, J. E.; **Orbaek White, A**.; Dunstan, P. R.; Chianelli, R. R.; Cobley, R. J.; Barron, A. R. Enhancement of Multi-Walled Carbon Nanotubes Electrical Conductivity Using Metal Nanoscale Copper Contacts and Its Implications for Carbon Nanotube-Enhanced Copper Conductivity. J. *Phys. Chem. C* **2020**, *124*, 34. (https://doi.org/10.1021/acs.jpcc.0c05000)

24. Barnett, C. J., Gowenlock, C. E., **Orbaek White, A.** and Barron, A. R. Pressure dependent conduction of individual multi-walled carbon nanotubes: the effect of mechanical distortions. *Nanoscale Advances*, **2021**, 3, 643. DOI: 10.1039/D0NA01021A

25. Saeed Khodabakhshi, Sajad Kiani, Yubiao Niu, **Alvin Orbaek White**, Wafa Suwaileh, Richard E. Palmer, Andrew R. Barron, Enrico Andreoli. Facile and environmentally friendly synthesis of ultramicroporous carbon spheres: A significant improvement in CVD method. *Carbon*, **2021**; 171: 426 DOI: 10.1016/j.carbon.2020.08.056

26. Barnett, C.J., **Orbaek White, A**. and Barron, A.R. Size dependent conduction characteristics of catalyst-multi-walled carbon nanotube junction. *Carbon Lett.* **2021**, 1-7 DOI: https://doi.org/10.1007/s42823-020-00215-0

27. Barnett, C.J., McGettrick, J.D., Shenoy, V.S., Kazimierska, E., **Orbaek White, A**. and Barron, A.R. Effect of Applied Pressure on the Electrical Resistance of Carbon Nanotube Fibers. *Materials.* **2021**, 14, 9, 2106. DOI: https://doi.org/10.3390/ma14092106

28. Barnett, C.J., McGettrick, J.D., Gangoli, V.S., Navarro-Torres, J., Watson, T., GG Maffeis, T., Barron, A.R., and **Orbaek White, A**. Controlled and permanent induced Fermi shifts and upwards band bending in ZnO nanorods by surface stripping with argon bombardment. *Materials Lett.* **2021**, 30, 130288. DOI: https://doi.org/10.1016/j.matlet.2021.130288

29. Tsampanakis, I.; **Orbaek White, A.** The Mechanics of Forming Ideal Polymer–Solvent Combinations for Open-Loop Chemical Recycling of Solvents and Plastics. *Polymers* **2022**, *14*, 112. https://doi.org/10.3390/polym14010112

30. **Orbaek White, A.**, Hedayati, A., Yick, T., Gangoli, V.S., Niu, Y., Lethbridge, S., Tsampanakis, I., Swan, G.; Pointeaux, L., Crane, A. et al. On the Use of Carbon Cables from Plastic Solvent Combinations of Polystyrene and Toluene in Carbon Nanotube Synthesis.

Nanomaterials **2022**, *12*, 9. https://doi.org/10.3390/nano12010009.

31. Gangoli, V.S.; Barnett, C.J.; McGettrick, J.D.; **Orbaek White, A.**; Barron, A.R. Increased Electrical Conductivity of Carbon Nanotube Fibers by Thermal and Voltage Annealing. *C* **2022**, *8*, 1. https://doi.org/10.3390/c8010001.

32. Gangoli, V.S.; Yick, T.; Bian, F.; **Orbaek White, A**. From Waste Plastics to Carbon Nanotube Audio Cables. *C* **2022**, *8*, 9. https://doi.org/10.3390/c8010009.

33. Howarth, J.R.; **White, A.O.**; Hedayati, A.; Niu, Y.; Palmer, R.E.; Tang, K.W. Interactions between Multi-Walled Carbon Nanotubes and Plankton as Detected by Raman Spectroscopy. *Chemosphere* **2022**, *295*, 133889, https://doi.org/10.1016/j.chemosphere.2022.133889.

34. Gangoli, V.S.; Mahy, T.; Yick, T.; Niu, Y.; Palmer, R.E.; **Orbaek White, A**. Upcycling of Face Masks to Application-rich Multi- and Single-walled Carbon Nanotubes. *Carbon Letters* **2022** https://doi.org/10.1007/s42823-022-00398-8.

35. Olasunkanmi, O.G.; Apena, W.O.; Barron, A.R.; **White, A.O.**; Todeschini, G. Impact of a HVDC Link on the Reliability of the Bulk Nigerian Transmission Network. *Energies* **2022**, *15*, 9631. https://doi.org/10.3390/en15249631

36. Mulla, R; **Orbaek White, A**; Dunnill, C.W.; Barron, A.R. The role of graphene in new thermoelectric materials. Energy Adv., **2023**, Advance Article. https://doi.org/10.1039/D3YA00085K

37. Mulla, R; Kiani, S; **Orbaek White, A**; Dunnill, C.W.; Barron, A.R. Enhanced thermoelectricity in Bi-sprayed bismuth sulphide particles. Mat. Sci. Semicon. Proc. 162, 2023. https://doi.org/10.1016/j.mssp.2023.107528

In preparation

1. Gangoli, V.S.; Mahy, T.; **Orbaek White, A**. Tracing the Path of 13C Carbon Isotopes from Polystyrene into Carbon Nanotubes via the Redshift of Graphitic Peaks in Resonant Raman Spectroscopy. *ACS Nano* **2023** in preparation.

2. Jaffer, A.; **Orbaek White, A**. How many chemically recycled plastic bottles make a space elevator? **2023** in preparation

3. Benavides-Laconca, A; Mahy, T.; Gangoli, V.S.; **Orbaek White, A**. A chemical recycling route for clothing, from waste polyester to carbon nanotubes. *Nanomaterials* **2023** in preparation.

4. Mahy, T.; Gangoli, V.S.; Yick, T.; Wilson, M; O'Caoimh, R; **Orbaek White, A**. On the origins of carbon nanotube manufacturing and their use in ancient black-smithing. **2023** in preparation.

5. **Orbaek White, A.**; Yick, T.; Evans, B.J.; Hart, A.J. Improving ultralong single walled carbon nanotube growth with a little tilt. *Nano Lett.* **2023**, In preparation

6. Yick, T.; Evans, B.J.; Hart, A.J.; **Orbaek White, A.** Simulating nanoscale flows around an Ultra-Long Carbon Nanotube using the Boltzmann-BGK equation. *J. Phys. Chem. C.* **2023** In preparation

7. Anderson, A.O.; Corr, S.J.; **Orbaek White, A.** In-situ carbon fiber synthesis using camphor and ferrocene by cold wall chemical vapour deposition. *C.* **2023** In preparation

Conference Proceedings

1. **Orbaek, A.W.**; Barron, A.R. Length amplification of single walled carbon nanotubes for the enrichment of chiral specific nanotubes. *Nanotech* **2012**, *1*, 330-333.

Contributions to policy briefings of the Government of the United Kingdom

1. Lorna Christie. *Distributed Ledger Technology*, POSTbriefs POST-PB-0028, Parliamentary Office of Science and Technology, Westminster, London. https://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PB-0028 (Accessed on October 30, 2018)

2. Peter Border; Caroline Wood. *Plastic food packaging waste*, POSTnotes POST-PN-0605, Parliamentary Office of Science and Technology, Westminster, London. https://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-0605 (Accessed on July 4, 2019)

Trade books

1. Michael L. Matson; **Alvin W. Orbaek** *Inorganic Chemistry For Dummies*, 1st ed. John Wiley & Sons, Inc., Hoboken, NJ, 2013

Web-based Publications

1. **Orbaek, A.**; Phillips, M; McHale, M.; Barron, A. Silver Nanoparticles: A Case Study in Cutting Edge Research, *Connexions* http://cnx.org/content/m19597/1.11/ (accessed Jan 10, 2022)

2. **Orbaek, A.**; Barron, A. ICP-AES Analysis of Nanoparticles, *Connexions* http://cnx.org/content/m22058/1.18/ (accessed Jan 10, 2022)

3. **Orbaek White, A**. Black plastic can't be recycled – but we've just found a way to use the carbon in renewable energy. *The Conversation*, **2019** (Accessed on June 2019) https://theconversation.com/black-plastic-cant-be-recycled-but-weve-just-found-a-way-to-use-the-carbon-in-renewable-energy-100037)

4. **Orbaek White, A**. Plastic pollution: why chemical recycling could provide a solution. *The Conversation*, April 21, **2020** (Accessed on May 20) https://theconversation.com/plastic-pollution-why-chemical-recycling-could-provide-a-solution-129917

5. **Orbaek White, A.** The wiring in your plane could soon be made from recycled plastic –

new research. *The Conversation*, January 12, **2022** (Accessed on January 25, 2022) https://theconversation.com/the-wiring-in-your-plane-could-soon-be-made-from-recycled-plastic-new-research-174431

HONORS AND AWARDS

2021 Fellow of the **Higher Education Authority**, United Kingdom
2020 Associate Fellow of the **Higher Education Authority**, United Kingdom
2013 Younger Chemist of the Year Award **American Chemical Society** Greater Houston Area
2013 Independent Study Mentorship Program, **Clear Lake High School, Clear Lake, TX**
2011 Project SEED, **American Chemical Society**
2010 Project SEED, **American Chemical Society**
2010 Nanotechnology Imagery contest**, The Richard E. Smalley Institute for Nanoscale Science and Technology**
2009 Harry B. Weiser award for Excellence in Teaching, **Rice University**
2005 FÁS Science Challenge Award, **Foras Áiseanna Saothair** (Irish National Training and Employment Authority), Government of the Republic of Ireland.

PATENT APPLICATIONS

Granted

2019 **Orbaek White, A** and Yick, K. C., *"Process for the Formation of Electrically Conducting Wires Made from Carbon Nano Materials."* United States Patent Application No. 62940304. November 26. Provisional patent.

In Process

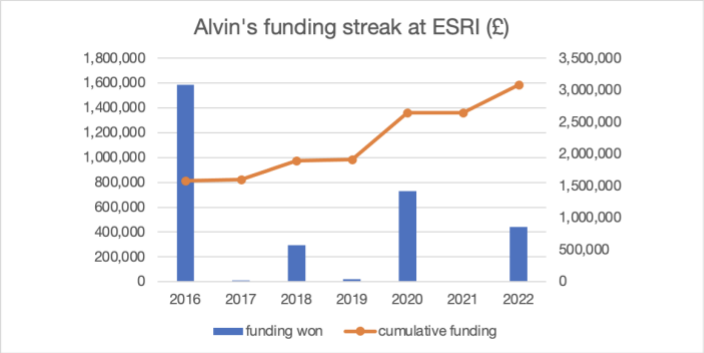
2018 **Orbaek White, A** and Hedayati, A, *"Process for Reuse of Plastic through the Conversion to Carbon Nanomaterials."* United States Patent Application Serial No. 16/435,475. PCT Application No. PCT/IB2019/054792. June 8.

Dropped

2013 Barron, A.R.; Maguire-Boyle, S.J.; **Orbaek, A.W.**, *"Analyzing the transport of plasmonic particles through mineral formations."* United States Patent 8,575,548. November 5.

2011 Potter, D.K.; Barron, A.R.; Maguire-Boyle, S.J.; **Orbaek, A.W.**; Ali, A.; Harrison, L., *"Magnetic particles for determining reservoir parameters."* United States Pub. No.: WO/2011/153339. International Application No.: PCT/US2011/038912. February 6.

SUCCESSFUL FUNDING & GRANT CAPTURE



Monetary sum of funding applications (£)
9,033,123.45

Total research funding won (£)
3,082,942.28

Cumulative succes rate per monetary value
34%

Research funding established as a PI (£)
1,249,962.84

Research funding won from industry (£)
1,987,134.24

2022 *PI* £38,269 Increasing the revenue stream by the capture of hydrogen **Funded by Innovate UK**

2022 *PI* £313,274.80 Informing pilot plant design and operation through the design, build, and operation and testing of a mini-reactor **Industrial Sponsored Research**

2022 *PI* £87,500 Hydrogen Production **Industrial Sponsored Research**

2020 *PI* ~£270,000 Closed Loop Chemical Recycling **Funded by Welsh Government**

2020 *Co-I* ~£204,030 "Technology for Creating a Sustainable Safe Environment Post COVID-19 (TCSSE-19)" for the Sêr Cymru – Tackling COVID-19 Call. **Funded by Welsh Government**

2020 *PI* ~£17,000 MSc Energy Innovation: Fully Funded KESS II MSc by Research Scholarship: Increasing the efficiencies of fridges using carbon nanomaterials. **Funded by KESS2 & European Regional Development Fund**

2020 *PI* ~£17,000 MSc Energy Innovation: Fully Funded KESS II MSc by Research Scholarship: Upcycling of facemasks to carbon nanotubes. **KESS2 & European Regional Development Fund**

2020 *PI* £169,000 Energy Materials from the Circular Economy **Industrial Sponsored Research**

2019 *PI* £2,390 SCoRE travel grant. **Funded by Welsh European Funding Office**

2019 *PI* MSc Energy Innovation: Fully Funded KESS II MSc by Research Scholarship: Upcycling of plastic materials from healthcare sector. **Funded by KESS2 & European Regional Development Fund**

2018 *PI* £5,000 Upcycling Plastics: Carbon Nanomaterials from Waste Plastic **Funded by Impact Acceleration Account (IAA) Research Impact Fund Engineering & Physical Sciences Research Council (EPSRC)**

2018 *PI* £16,358 Engineering for the circular economy. Using nanotechnology to upcycle waste materials into higher value products such as carbon nanomaterials **Funded by KESS2 & European Regional Development Fund**

2018 *Co-I* £261,336 Recovery of Graphite Flakes from Steelmaking By-Products **Funded by Innovate UK**

2017 *PI* £206,500 Sêr Cymru II Fellow, **Funded by European Regional Development Fund & the Welsh Government**

2017 *PI* £11,369 UK Nanotube Collaborative, Inaugural Workshop, **Funded by Engineering & Physical Sciences Research Council**

2017 *PI* £450 Single walled carbon nanotubes for use as electrical wires **Funded by IAA Research Impact Fund EPSRC**

2016 *PI* £1,367,643.44 Growth, purification and separation of ultra long single walled carbon nanotubes "GPS" **Industrial Sponsored Research**
2011 *Co-I* $6,000 Project SEED program, **Funded by American Chemical Society**
2010 *Co-I* $6,000 Project SEED program, **Funded by American Chemical Society**
2009 *Co-I* $5,000 Project SEED program, **Funded by American Chemical Society**

INVITED TALKS

2022 Clawing our way back from plastic fantastic – one carbon atom at a time. **The Environment Platform Wales**. November 03.
2020 Carbon nanotubes as signal transmission lines demonstrator of the circular economy in practice. NanotecC20, The British Carbon Group, **University of Surrey, UK**. August 25.
2020 Considering plastic as a commodity by using nanotechnology. British Council 1st UK-Kuwait Fuel Recovery from Plastic Solid Waste Symposium, **Kuwait**. January 14.
2019 Carbon nanomaterials from medical waste. Transcending Incrementalism TI-10, Nuclear Research Centre of Morocco, **Morocco**. November 7-8. [http://ti-10.cnesten.org.ma/]
2019 Creating impact in research. Panelist for Welsh Crucible Panel Discussion, Swansea, **United Kingdom**. July 19.
2019 Towards the world's best conductor from a sustainable resource. New Zealand Institute of Chemistry, Auckland University of Technology, **New Zealand**. February 22.
2017 Ultra Long Single Carbon Nanotubes. 5th Nano-Carbon Enhanced Materials Consortium. Cambridge, **United Kingdom**. July 12.
2015 Flow in the field of carbon nanotube growth. Mechanical and Aerospace Engineering Seminar Series, Guest Lecture. University of Virginia, VA, the **United States of America**. February 5.
2011 Silver nanotechnology. University of Saint Thomas, Houston, TX, **United States of America**. November 21.
2007 Galactic Suite Space Hotel. National University of Limerick, Department of Mathematics, Limerick, **Ireland**. December 11.

CONFERENCE ACTIVITY

International Advisory Committee

2019 - present Guadalupe Carbon nanotube growth workshops, Texas, USA. (http://guadalupe.rice.edu/international-advisory-committee/)

Conference Chair

2018 UK Meeting of Advanced Energy Materials (AEM). University of Surrey, England, UK. September 12th.

Conference Organizer and Conference Chair

2017 UK Nanotube Collaborative. Energy Safety Research Institute (ESRI), Swansea University, Swansea, Wales, UK. March 24th.

Rapporteur

2019 Guadalupe IX. Carbon nanotube growth workshop. Fredericksburg, San Antonio, Texas, USA. April.
2017 Guadalupe IIX. Carbon nanotube growth workshop. Bandera, San Antonio, Texas, USA. April.
2015 Guadalupe IIIX. Single walled carbon nanotube growth workshop. Bandera, San Antonio, Texas, USA. April.

CAMPUS OR DEPARTMENTAL TALKS

2021 Carbon nanotubes from plastics. **University of Strathclyde, UK**. December 16.
2018 Upcycling carbon from waste to carbon nanotubes. HiPerNano 2018 Nanotechnology for Clean Growth. London, Knowledge Transfer Network (KTN), **United Kingdom**. June 27.
2017 Towards the potential of carbon nanotubes for electricity conduction wires. Department Seminar. Advanced Institute of Technology, Surrey, **United Kingdom**. November 16.
2017 Ultra Long Single Carbon Nanotubes. 5th Nano-Carbon Enhanced Materials Consortium. Cambridge, **United Kingdom**. July 12.
2017 Ultra Long Single Walled Carbon Nanotubes. UK Nanotube Collaborative. Energy Safety Research Institute, Swansea University, Wales, **United Kingdom**. March 24.

TEACHING EXPERIENCE

2020- present **Swansea University, Swansea, Wales, UK.** Lecturer. College of Engineering. Chemical Engineering Skills (EG-111) Level 1
2020- present **Swansea University, Swansea, Wales, UK.** Lecturer and Module Coordinator. College of Engineering. Appropriate Technologies (EGSM05) MSc Level
2016- present **Swansea University, Swansea, Wales, UK.** Lecturer and Module Coordinator. College of Engineering. Heat Transfer (EG-103) Level 1
2016- present **Swansea University, Swansea, Wales, UK.** Supervisor, College of Engineering. Chemical Engineering Design Projects (EGA-326)
2016- present **Swansea University, Swansea, Wales, UK.** Supervisor and Mentor, College of Engineering. Chemical Engineering Masters Level Project (EGC401) Level M.
2015 **Massachusetts Institute of Technology, Cambridge, MA.** Recitation Instructor. Department of Physics. (Advanced) Introduction to Mechanics (MIT 8.012)
2007 – 2010 **Rice University**, **Houston, TX.** Teaching Assistant. Department of Chemistry, courses CHEM123 & CHEM124
2009 **Rice University, Houston, TX.** Instructor. Undergraduate course on "Ethics in Research"

2003 **National University of Ireland Galway, Galway, Ireland.** Teaching Assistant. Department of Physics.

DEPARTMENTAL AND UNIVERSITY SERVICE

2021-present Board Member of the BAME student network. **Swansea University, Swansea, Wales, UK.**
2021-present Module coordinator for Texas A&M semester abroad program. **Swansea University, Swansea, Wales, UK.**
2010 - 2012 Graduate Student Departmental Coordinator for the Center for Biomedical Engineering and Nanotechnology (CBEN). **Rice University, Houston, TX, USA.**

SERVICE TO ACADEMIC PROFESSION

Grant Reviewer

2021 - Present **The National Science Centre, Poland (NCN)**
- https://www.ncn.gov.pl/en

2019 - Present **The Engineering and Physical Sciences Research Council (EPSRC)**
- https://epsrc.ukri.org/

International Advisory Committee

2019 - Present **Guadalupe Carbon Nanotube Conference**
- http://guadalupe.rice.edu/international-advisory-committee/

Editorial Board

2016 - Present **Journal of Carbon Research C**
- Editorial board member
- Editor of the special issue: Carbon-Based Materials for Electrical Power Transmission and Smart Grid Technologies
- http://www.mdpi.com/journal/carbon

CONTINUED PROFESSIONAL DEVELOPMENT

2022 *Mastering Negotiation and Influence*. **MIT Sloan Executive Education, USA**.
2021 *Fellow of the Higher Education Authority (FHEA)*. **United Kingdom.**
2020 *Associate Fellow of the Higher Education Authority (AFHEA)*. **United Kingdom.**
2020 Chemical Engineering for Scientists and Other Engineers, 20.5 CPD hours, **The Institution of Chemical Engineers United Kingdom.**
2020 Scale-up.,4 CPD hours, **The Institution of Chemical Engineers United Kingdom.**

2020 *The Royal Society Parliamentary Pairing Scheme*. Selected in a highly competitive process to shadow a civil servant at The Cabinet Office of UK Government. **The Royal Society, United Kingdom.**

2017 *Digital Economy Crucible*. Selected as a participant through competitive process within the UK to participate in the Digital Economy Crucible programme of professional development for future research leaders in the digital economy, sponsored by CHERISH-DE. **United Kingdom.**

2017 *Welsh Crucible*. Selected as a participant on the Welsh Crucible programme of professional development for future research leaders of Wales following a competitive application process. **Wales, United Kingdom.** (https://welshcrucible.org.uk/alvin-orbaek-white/)

2017 *CORE leadership training I & II*. **Swansea University, United Kingdom.**

2015 *Kaufman Teaching Certificate Program*. Selected as participant within MIT community to participate in a nine-week educators training program. **Massachusetts Institute of Technology, Massachusetts, Cambridge, MA.**

2013 *T-Rex Toastmasters*. **Toastmasters International, Houston, TX.**

2009 *Innovation Norway*. Selected to participate in 6-week summer training program covering business practices, entrepreneurship and business planning. **Rice Alliance, Rice University, Houston TX.**

2009 *Technology Entrepreneurship Workshop*. **Rice Alliance, Rice University, Houston TX.**

2006 *Hazardous Materials HAZWOPER First Responder Awareness Training*. **HAZMAT, Harris County Fire Department, Harris County, Houston, TX.**

2005 *Advanced Excel Programming*. Advance excel operations, functions, and macro programming. **Deloitte S_2G, Barcelona, Spain.**

2004 *Advanced Accounting Practices*. Principles of accounting and advanced accounting practices. **Deloitte S_2G, Barcelona, Spain.**

COMMUNITY INVOLVEMENT & OUTREACH ACTIVITIES

2019 – 2020 **National Waterfront Museum, Swansea, UK**

2018 - present **Bishop Vaughan High School, Swansea, UK**

2018 - present **National STEM Ambassador, UK**

2016 - 2018 **Swansea University, Swansea, Wales, UK, TX**
Academic pre-sessional lecture for students attending the English Language Training Services (ELTS)

2011 **Dulles High School, Fort Bend, Houston, TX**
Taught one extra credit course for summer school students

2010 – 2011 **Hightower High School, Fort Bend, Houston, TX**
Taught silver nanotechnology class to students of science
Spoke with several classes about the benefits of research in society

2009 – 2011 **Children's Museum of Houston, Houston, TX**
Guest lecturer to teachers on the advancements of nanotechnology
Volunteered at: Nanodays, and Machine factory
"nanotechnology pantomime" with Professor Douglas Natelson

MEDIA & PRESS COVERAGE

The full list of media coverage can be found on my personal website using this link (http://www.alvinorbaekwhite.com/press).

NON-ACADEMIC WORK

2021-Present **C6Consultancy Ltd.** Founder
2019-Present **TrimTabs Ltd.** Founder
2012 – 2013 **John Wiley & Sons, Inc., Hoboken, NJ.** Author
- Inorganic Chemistry for Dummies textbook

2006 - 2006 **Centre de Tecnologia Aeroespacial (CTAE), Barcelona, Spain.** Consultant Engineer
- Galactic Suite space hotel project, to design and build a space hotel

2003 – 2005 **Deloitte (S_2G), Barcelona, Spain.** Team Leader of Accounts Payable Team
- Managed the accounting practices for Hewlett Packard Accounts Payable

1997 **Tin Pan Alley, San Antonio, Ibiza, Spain.** DJ
- DJ for the summer months

1995 – 1996 **The Atlantic Hotel, Ballybunion, Co. Kerry, Ireland.** DJ
- DJ for the summer months

1994 – 1995 **Raidió Teilifís Éireann (RTE), Ireland.** News Correspondent on Echo Island

LANGUAGES

English - Native speaker
Danish - Native speaker
Spanish - Conversational
Catalan - Conversational

PROFESSIONAL MEMBERSHIPS

Institution of Chemical Engineers - Associate Member (2019 - present)
Royal Society of Chemistry - Member (MRSC) (2018 - present)
Institute of Physics - Member (2018 - 2019)
American Chemical Society - Member (2010 - 2016)

References are available upon request.