Stanford



Adam Boies

Associate Professor of Mechanical Engineering and Center Fellow at the Precourt Institute for Energy

Curriculum Vitae available Online

Bio

BIO

Adam Boies is head of the Aerosol and Nanotechnology for Energy and the Environment (ANEE) laboratory, which focuses on developing energy and environmental technologies through aerosol and nano-scale approaches that can either synthesize or measure aerosols, nanoparticles, or pollution.

He was previously Professor of Nanomaterials and Aerosol Engineering and Head of the Energy Faculty at the Cambridge University Engineering Department. He served as director of the Advanced Carbon Application and Manufacturing network and was co-creator and Partnership Director of the Aerosol Science CDT.

See www.ANEEStanford.com

ACADEMIC APPOINTMENTS

- Associate Professor, Mechanical Engineering
- Center Fellow, Precourt Institute for Energy

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Fellow, Trinity College, Cambridge (2014 - present)
- Editor, Aerosol Science and Technology (2024 - present)
- Associate Editor, Journal of Aerosol Science (2024 - present)
- Affiliate, Stanford Center for Human and Planetary Health (2025 - present)

LINKS

- https://ANEEstanford.com/: https://ANEEstanford.com/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Boies group focuses on characterizing the evolution, dynamics and impacts of two-phase reacting flows with an emphasis on aerosol technology applied to energy materials, nanomaterial morphology and particle sensing. His group has developed methods to synthesize and characterize carbon nanotube materials that self-assemble into aerogels which are post processed as advanced fibres or matts. Complimentary work in nanomaterial sensing has enabled new techniques to measure nanomaterial morphology such as fractal structures with application in pollution, fire detection, non-

exhaust particles and aircraft emissions and contrails. Applications of our core technologies include nanomanufacturing processing technologies, electrochemistry applied to lithium-ion electrode materials, filtering and catalysis of pollutants.

Adam Boies is a Fellow of Trinity College and has over 100 publications and 20 patents. He has been granted >$40m total project funding from EPSRC, IUK, EU Horizon2020 and NERC. Technology from his group launched five spin-outs, where he serves as Research Director for Catalytic Instruments (emissions sensing); co-founder of Echion Technologies (lithium ion electrode materials), CamVolt Ltd. (battery cycling measurement) and AetoSense (pollution detection); and has licenced technology to Atmose Ltd (air quality monitoring). He serves as a board member of the UK Aerosol Society and is Chief Scientific Advisor to Q-Flo Technologies.

Teaching

COURSES

2026-27

- Heat Transfer: ME 131 (Win)

2025-26

- Convective Heat Transfer: ME 352C (Spr)
- Fundamentals of Aerosols and Nanoparticle Science: ME 374 (Aut)
- Heat Transfer: ME 131 (Win)

2024-25

- Convective Heat Transfer: ME 352C (Spr)
- Heat Transfer: ME 131 (Win)
- Thermofluids, Energy, and Propulsion Research Seminar: ME 390A (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Ghufran Alkhamis, Ethan Genter, Zev Granowitz, Kiran Hamkins, Dolly Mantle, Luke Min, Henry Moise

Postdoctoral Faculty Sponsor

Cyprien Hugues Dominique Jourdain

Doctoral Dissertation Advisor (AC)

Omar Allahham, Cheyenne Halverson, Karime Hernandez Perez, Michael Larson, Julie Pongetti, Gaurav Sharma, Maddie Swint

Master's Program Advisor

Kalin Le, Andrew Pasco, Madalyn Pullins, Anna Yu

Doctoral (Program)

Hao Zhang

Publications

PUBLICATIONS

- **Production of hydrogen and carbon nanotubes from methane using a multi-pass floating catalyst chemical vapour deposition reactor with process gas recycling.** *Nature energy*
  Peden, J., Ryley, J., Terrones, J., Smail, F., Elliott, J. A., Windle, A., Boies, A.
  2026; 11 (1): 121-134

- **New insights into superheated atomisation offer potential improvement in submicron particle size distribution for marine cloud brightening** *ATMOSPHERIC RESEARCH*
  Reardon, E., Boies, A., Chapman, J., Harrison, D., McGrath, D., Hunt, H., Fitzgerald, S.
  2026; 341
- **Evidence for extender oils in thermally generated tyre nanoparticles.** *Environmental science. Processes & impacts*
  Hassim, J., Saladin, S., Giorio, C., Boies, A.
  2026
- **Understanding catalyst aerosol dynamics in the floating catalyst chemical vapor deposition synthesis of carbon nanotubes** *JOURNAL OF AEROSOL SCIENCE*
  Sloan, A. W. N., Glerum, M. W. J., Jr, G., Boies, A. M., Pasquali, M.
  2027; 199
- **Modelling the photocatalytic oxidation of methane and other air pollutants for applications in ventilation systems** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
  Tomlinson, S. D., Tsopelakou, A., Onn, T., Barrett, S. R. H., Boies, A. M., Fitzgerald, S.
  2026; 271
- **Identifying active surfaces for C2 decomposition relevant to the FC-CVD CNT synthesis process** *CHEMICAL ENGINEERING JOURNAL*
  Dannar, A., Peden, J., Hussain, S., Le, S., Khabushev, E., Cavuto, D., Bellettati, G., Murmura, M., Pasquali, M., Cargnello, M., Boies, A., Reece, C.
  2026; 547
- **Evaluating the Scale of Natural and Mechanical Airflows for Surface-Based Atmospheric Pollutant Removal.** *Environmental science & technology*
  Tomlinson, S. D., Tsopelakou, A. M., Onn, T. M., Barrett, S. R., Boies, A. M., Fitzgerald, S. D.
  2026
- **Transport of nanoparticles in tubes with distributed radial inflow** *AEROSOL SCIENCE AND TECHNOLOGY*
  Risby, K., Hassim, J. S., Pongetti, J., Boies, A. M.
  2026
- **TREADS: tyre nanoparticles produced using a bench-top tyre wear simulator** *ENVIRONMENTAL SCIENCE-NANO*
  O'Loughlin, D. P., Gisbourne, C., Day, C., Beeby, J., O'Neill, T., Haugen, M. J., Morone, N., Duistermaat, E., de Boeck, R., Galesloot, S. H., van Triel, J., Gerlofs-Nijland, M., Cassee, et al
  2026
- **Modelling laminar flow in V-shaped filters integrated with catalyst technologies for atmospheric pollutant removal** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
  Tomlinson, S. D., Tsopelakou, A. M., Onn, T., Barrett, S. R. H., Boies, A. M., Fitzgerald, S.
  2026; 257
- **Minaturised condensation particle counters: Radial sheathing** *AEROSOL SCIENCE AND TECHNOLOGY*
  Balendra, S., Shridhar Kale, A., Wang, C., Risby, K., Boies, A.
  2026
- **Physicochemical and Toxicological Characterization of Airborne Brake Wear Particles Reveals Oxidative Stress-Mediated DNA Damage.** *Environmental science & technology*
  Hyman, S., Saladin, S., Tsybrii, Y., Nosko, O., Williams, M., Zherebker, A., Risby, K., Topping, D., Boies, A., Giorio, C., Roursgaard, M., Moller, P.
  2026
- **Assessing the influence of morphological variability and classifier arrangement on tandem particle classification analysis** *JOURNAL OF AEROSOL SCIENCE*
  Hassim, J. S., Hochgreb, S., Boies, A. M.
  2026; 191
- **Kinetic reactions of carbon nanotubes at high carbon concentrations** *CARBON*
  Glerum, M. W. J., Hussain, S., Stallard, J., Peden, J., Boies, A.
  2026; 248

- **Influence of precursor type on NMC811 cathode material properties: insights from spray pyrolysis synthesis and in situ XRD analysis** *JOURNAL OF MATERIALS CHEMISTRY A*
  Almazrouei, M., Sayed, F., Hou, D., Grey, C. P., Luo, K., Hochgreb, S., De Volder, M., Boies, A.
  2025
- **Converting methane into carbon nanotubes and hydrogen in a continuous flow reactor** *NATURE ENERGY*
  Peden, J., Boies, A.
  2025
- **Production of hydrogen and carbon nanotubes from methane using a multi-pass floating catalyst chemical vapour deposition reactor with process gas recycling** *NATURE ENERGY*
  Peden, J., Ryley, J., Terrones, J., Smail, F., Elliott, J. A., Windle, A., Boies, A.
  2025
- **Oxidative stress generated DNA damage by 6PPD and other tyre additives in A549 human lung epithelial cells.** *Scientific reports*
  Hyman, S., Bilic, R., Jensen, A., Saladin, S., Tsybrii, Y., Nosko, O., Topping, D., Boies, A., Giorio, C., Roursgaard, M., Moller, P.
  2025; 15 (1): 35615
- **Non-equilibrium thermodynamics of a coagulating aerosol: Relating the self-preserving size distribution to entropy.** *Journal of colloid and interface science*
  Qiu, X., Boies, A.
  2025; 701: 138625
- **Calibration and counting efficiency evaluation of condensation particle counters using the silver particle generator as a stable source of inorganic salt aerosols** *AEROSOL SCIENCE AND TECHNOLOGY*
  Krasa, H., Risby, K. M., Kupper, M., Bergmann, A., Boies, A. M.
  2025
- **Measurement of High Carbon Nanotube Growth Rate, Mass Production, Agglomeration, and Length in a Floating Catalyst Chemical Vapor Deposition Reactor.** *ACS nano*
  Hussain, S., Stallard, J. C., Jourdain, C., Glerum, M. W., Peden, J., Qiao, R., Boies, A. M.
  2025
- **Compositional study of Ti-Nb oxide (TiNb2O7, Ti2Nb10O29, Ti2Nb14O39, and TiNb24O62) anodes for high power Li ion batteries.** *Journal of materials chemistry. A*
  Son, Y., Jang, H., Wen, B., Jo, C., Groombridge, A. S., Boies, A., Kim, M. G., De Volder, M.
  2025
- **Fractal Scaling in the Gas-Phase Agglomeration of Nanowires.** *Small (Weinheim an der Bergstrasse, Germany)*
  Abomailek, N., Gomez-Palos, I., Carnicero, C., Murillo, M., Schaufele, R., Qiao, R., Boies, A., Vilatela, J. J.
  2025: e2409673
- **Vehicle emission models alone are not sufficient to understand full impact of change in traffic signal timings** *ATMOSPHERIC ENVIRONMENT-X*
  Schroeder, A. K., Woodward, H., Le Cornec, C. M. A., Proust, T., Benie, P. J., Fan, S., Aristodemou, E., Jones, R. L., Linden, P. F., de Nazelle, A., Boies, A. M., Stettler, M. E. J.
  2024; 24
- **Airborne Tire Wear Particles: A Critical Reanalysis of the Literature Reveals Emission Factors Lower than Expected** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Saladin, S., Boies, A., Giorio, C.
  2024
- **Gas-Phase Dynamics of Bundle Formation from High-Aspect-Ratio Carbon Nanotubes.** *Langmuir : the ACS journal of surfaces and colloids*
  Qiao, R., Qiu, X., Boies, A.
  2024
- **Method development and analysis of nanoparticle size fractions from tire-wear emissions** *ENVIRONMENTAL SCIENCE-ATMOSPHERES*
  Haugen, M., Buehler, P., Schlaefle, S., O'Loughlin, D., Saladin, S., Giorio, C., Boies, A.
  2024; 4 (9): 1079-1090

- **Charge-Based Separation of Microparticles Using AC Insulator-Based Dielectrophoresis** *ANALYTICAL CHEMISTRY*
  Tabarhoseini, S., Kale, A., Koniers, P., Boone, A., Bentor, J., Boies, A., Zhao, H., Xuan, X.
  2024; 96 (33): 13672-13678
- **Synthesis Pathway of Layered-Oxide Cathode Materials for Lithium-Ion Batteries by Spray Pyrolysis** *ACS APPLIED MATERIALS & INTERFACES*
  Almazrouei, M., Park, S., Houck, M., De Volder, M., Hochgreb, S., Boies, A.
  2024; 16 (26): 33633-33646
- **Exploring the bounds of methane catalysis in the context of atmospheric methane removal** *ENVIRONMENTAL RESEARCH LETTERS*
  Tsopelakou, A., Stallard, J., Archibald, A. T., Fitzgerald, S., Boies, A. M.
  2024; 19 (5)
- **Flexible Bifunctional Electrode for Alkaline Water Splitting with Long-Term Stability** *ACS APPLIED MATERIALS & INTERFACES*
  Ganguly, A., Mcglynn, R. J., Boies, A., Maguire, P., Mariotti, D., Chakrabarti, S.
  2024; 16 (10): 12339-12352
- **Continuous gas-phase synthesis of iron nanoparticles at ambient conditions with controllable size and polydispersity** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
  Qiao, R., Boies, A.
  2024; 658: 986-996
- **Dynamics of unipolar charged particles flowing through a cylindrical tube at high number concentrations** *JOURNAL OF AEROSOL SCIENCE*
  Kale, A., Woo, M., Swanson, J. J., Lim, D., Boies, A. M.
  2024; 176
- **Enhanced composite thermal conductivity by percolated networks of in-situ confined-grown carbon nanotubes** *NANO RESEARCH*
  Zhang, X., Tan, W., Carey, T., Wen, B., He, D., Arbab, A., Groombridge, A., Smail, F., de La Verpilliere, J., Yao, C., Wang, Y., Wei, X., Liu, et al
  2023
- **Enhanced Visible Light-Driven Photocatalytic Water-Splitting Reaction of Titanate Nanotubes Sensitised with Ru(II) Bipyridyl Complex** *NANOMATERIALS*
  Malizia, M., Scott, S. A., Torrente-Murciano, L., Boies, A. M., Aljohani, T. A., Baldovi, H. G.
  2023; 13 (22)
- **Condensation particle counters: Exploring the limits of miniaturisation** *JOURNAL OF AEROSOL SCIENCE*
  Balendra, S., Kale, A., Pongetti, J., Kazemimanesh, M., Haugen, M., Weller, L., Boies, A.
  2024; 175
- **Boosting total oxidation of methane over NiO nanocrystalline decorated ZnO-CoNi solid solution via photothermal synergism** *APPLIED CATALYSIS B-ENVIRONMENTAL*
  Sun, C., Zhao, K., Boies, A., Xiao, S., Yi, Z.
  2023; 339
- **Overview of methods to characterize the mass, size, and morphology of soot** *JOURNAL OF AEROSOL SCIENCE*
  Sipkens, T. A., Boies, A., Corbin, J. C., Chakrabarty, R. K., Olfert, J., Rogak, S. N.
  2023; 173
- **Multi-element analysis of tyre rubber for metal tracers** *ENVIRONMENT INTERNATIONAL*
  O'Loughlin, D. P., Haugen, M. J., Day, J., Brown, A. S., Braysher, E. C., Molden, N., Willis, A. E., MacFarlane, M., Boies, A. M.
  2023; 178: 108047
- **Parameterization and modeling protocols for ultra-fast charging Wadsley-Roth lithium-ion batteries from coin to pouch cells** *CELL REPORTS PHYSICAL SCIENCE*
  Houck, M. E., Groombridge, A. S., De Volder, M. F. L., Boies, A. M.
  2023; 4 (5)
- **Compact aerosol aggregate model (CA²M): A fast tool to estimate the aerosol properties of fractal-like aggregates** *AEROSOL SCIENCE AND TECHNOLOGY*

Jourdain, C., Symonds, J. P. R., Boies, A. M.
2023; 57 (8): 797-809

- **Analysis of Differences in Electrochemical Performance Between Coin and Pouch Cells for Lithium-Ion Battery Applications** *ENERGY & ENVIRONMENTAL MATERIALS*
  Son, Y., Cha, H., Lee, T., Kim, Y., Boies, A., Cho, J., De Volder, M.
  2024; 7 (3)
- **Direct-spun CNT textiles for high-performance electromagnetic interference shielding in an ultra-wide bandwidth** *CARBON*
  Issman, L., Alper, M., Howard, S., Karch, C., Yeshurun, S., Pick, M., Boies, A.
  2023; 206: 166-180
- **Reactor processes for value added carbon synthesis and turquoise hydrogen** *TURQUOISE HYDROGEN*
  Glerum, M. W. J., Boies, A. M.
  edited by Pelucchi, M., Maestri, M.
  2023; 61: 133-192
- **Simultaneously enhanced tenacity, rupture work, and thermal conductivity of carbon nanotube fibers by raising effective tube portion** *SCIENCE ADVANCES*
  Zhang, X., De Volder, M., Zhou, W., Issman, L., Wei, X., Kaniyoor, A., Portas, J., Smail, F., Wang, Z., Wang, Y., Liu, H., Zhou, W., Elliott, et al
  2022; 8 (50): eabq3515
- **Measuring the Air Quality Using Low-Cost Air Sensors in a Parking Garage at University of Minnesota, USA** *INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH*
  Gonzalez, A., Boies, A., Swanson, J., Kittelson, D.
  2022; 19 (22)
- **Forecasting carbon nanotube diameter in floating catalyst chemical vapor deposition** *CARBON*
  Bulmer, J. S., Sloan, A. W. N., Glerum, M., Carpena-Nunez, J., Waelder, R., Humes, J., Boies, A. M., Pasquali, M., Rao, R., Maruyama, B.
  2023; 201: 719-733
- **Measurements and modelling of the three-dimensional near-field dispersion of particulate matter emitted from passenger ships in a port environment** *ATMOSPHERIC ENVIRONMENT*
  Haugen, M. J., Gkantonas, S., El Helou, I., Pathania, R., Mastorakos, E., Boies, A. M.
  2022; 290
- **Towards Portable MEMS Oscillators for Sensing Nanoparticles** *SENSORS*
  Chellasivalingam, M., Zielinski, A. T., Whitney, T. S., Boies, A. M., Seshia, A. A.
  2022; 22 (15)
- **High degree of N-functionalization in macroscopically assembled carbon nanotubes** *JOURNAL OF MATERIALS SCIENCE*
  McGlynn, R. J., Brunet, P., Chakrabarti, S., Boies, A., Maguire, P., Mariotti, D.
  2022; 57 (28): 13314-13325
- **A study on the performance of low-cost sensors for source apportionment at an urban background site** *ATMOSPHERIC MEASUREMENT TECHNIQUES*
  Bousiotis, D., Beddows, D. C. S., Singh, A., Haugen, M., Diez, S., Edwards, P. M., Boies, A., Harrison, R. M., Pope, F. D.
  2022; 15 (13): 4047-4061
- **Highly Oriented Direct-Spun Carbon Nanotube Textiles Aligned by In Situ Radio-Frequency Fields** *ACS NANO*
  Issman, L., Kloza, P. A., Portas, J., Collins, B., Pendashteh, A., Pick, M., Vilatela, J. J., Elliott, J. A., Boies, A.
  2022; 16 (6): 9583-9597
- **Open-source modelling of aerosol dynamics and computational fluid dynamics: Bipolar and unipolar diffusion charging and photoelectric charging** *COMPUTER PHYSICS COMMUNICATIONS*
  Woo, M., Schriefl, M. A., Knoll, M., Boies, A. M., Stettler, M. E. J., Hochgreb, S., Nishida, R. T.
  2022; 278
- **Source terms for benchmarking models of SARS-CoV-2 transmission via aerosols and droplets** *ROYAL SOCIETY OPEN SCIENCE*
  Stettler, M. E. J., Nishida, R. T., de Oliveira, P. M., Mesquita, L. C. C., Johnson, T. J., Galea, E. R., Grandison, A., Ewer, J., Carruthers, D., Sykes, D., Kumar, P., Avital, E., Obeysekara, et al

2022; 9 (5): 212022

- **Differentiating Semi-Volatile and Solid Particle Events Using Low-Cost Lung-Deposited Surface Area and Black Carbon Sensors** *ATMOSPHERE*
  Haugen, M. J., Singh, A., Bousiotis, D., Pope, F. D., Boies, A. M.
  2022; 13 (5)
- **Measuring the effect of fireworks on air quality in Minneapolis, Minnesota** *SN APPLIED SCIENCES*
  Gonzalez, A., Boies, A., Swanson, J., Kittelson, D.
  2022; 4 (5)
- **Electrification versus hydrogen for UK road freight: Conclusions from a systems analysis of transport energy transitions** *ENERGY FOR SUSTAINABLE DEVELOPMENT*
  Haugen, M. J., Flynn, D., Greening, P., Tichler, J., Blythe, P., Boies, A. M.
  2022; 68
- **Characterising the silver particle generator; a pathway towards standardising silver aerosol generation** *JOURNAL OF AEROSOL SCIENCE*
  Hammer, T., Irwin, M., Swanson, J., Berger, V., Sonkamble, U., Boies, A., Schulz, H., Vasilatou, K.
  2022; 163
- **A comparative study on effective density, shape factor, and volatile mixing of non-spherical particles using tandem aerodynamic diameter, mobility diameter, and mass measurements** *JOURNAL OF AEROSOL SCIENCE*
  Kazemimanesh, M., Rahman, M., Duca, D., Johnson, T. J., Addad, A., Giannopoulos, G., Focsa, C., Boies, A. M.
  2022; 161
- **Perspectives for regulating 10 nm particle number emissions based on novel measurement methodologies** *JOURNAL OF AEROSOL SCIENCE*
  Samaras, Z., Rieker, M., Papaioannou, E., van Dorp, W. F., Kousoulidou, M., Ntziachristos, L., Andersson, J., Bergmann, A., Hausberger, S., Keskinen, J., Karjalainen, P., Martikainen, S., Mamakos, et al
  2022; 162
- **Utah Wintertime Measurements of Heavy-Duty Vehicle Nitrogen Oxide Emission Factors** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Bishop, G. A., Haugen, M. J., McDonald, B. C., Boies, A. M.
  2022; 56 (3): 1885-1893
- **Reliable protocols for calculating the specific energy and energy density of Li-Ion batteries** *MATERIALS TODAY ENERGY*
  Son, Y., Cha, H., Jo, C., Groombridge, A. S., Lee, T., Boies, A., Cho, J., De Volder, M.
  2021; 21
- **Are medical procedures that induce coughing or involve respiratory suctioning associated with increased generation of aerosols and risk of SARS-CoV-2 infection? A rapid systematic review** *JOURNAL OF HOSPITAL INFECTION*
  Wilson, J., Carson, G., Fitzgerald, S., Llewelyn, M. J., Jenkins, D., Parker, S., Boies, A., Thomas, J., Sutcliffe, K., Sowden, A. J., O'Mara-Eves, A., Stansfield, C., Harriss, et al
  2021; 116: 37-46
- **Filtration of viral aerosols via a hybrid carbon nanotube active filter** *CARBON*
  Issman, L., Graves, B., Terrones, J., Hosmillo, M., Qiao, R., Glerum, M., Yeshurun, S., Pick, M., Goodfellow, I., Elliott, J., Boies, A.
  2021; 183: 232-242
- **Assessing the sources of particles at an urban background site using both regulatory instruments and low-cost sensors - a comparative study** *ATMOSPHERIC MEASUREMENT TECHNIQUES*
  Bousiotis, D., Singh, A., Haugen, M., Beddows, D. C. S., Diez, S., Murphy, K. L., Edwards, P. M., Boies, A., Harrison, R. M., Pope, F. D.
  2021; 14 (6): 4139-4155
- **Multiscale numerical modeling of solid particle penetration and hydrocarbons removal in a catalytic stripper** *AEROSOL SCIENCE AND TECHNOLOGY*
  Woo, M., Giannopoulos, G., Rahman, M., Swanson, J., Stettler, M. E. J., Boies, A. M.
  2021; 55 (9): 987-1000
- **Chemical characterization of size-selected nanoparticles emitted by a gasoline direct injection engine: Impact of a catalytic stripper** *FUEL*
  Duca, D., Rahman, M., Carpentier, Y., Pirim, C., Boies, A., Focsa, C.

2021; 294

- **Vanadium Dioxide Cathodes for High-Rate Photo-Rechargeable Zinc-Ion Batteries** *ADVANCED ENERGY MATERIALS*
  Deka Boruah, B., Mathieson, A., Park, S., Zhang, X., Wen, B., Tan, L., Boies, A., De Volder, M.
  2021; 11 (13)
- **Generating an aerosol of homogeneous, non-spherical particles and measuring their bipolar charge distribution** *JOURNAL OF AEROSOL SCIENCE*
  Johnson, T. J., Nishida, R. T., Zhang, X., Symonds, J. P. R., Olfert, J. S., Boies, A. M.
  2021; 153
- **Surfactant-free synthesis of copper nanoparticles and gas phase integration in CNT-composite materials** *NANOSCALE ADVANCES*
  Brunet, P., McGlynn, R. J., Alessi, B., Smail, F., Boies, A., Maguire, P., Mariotti, D.
  2021; 3 (3): 781-788
- **A fork in the road: Which energy pathway offers the greatest energy efficiency and CO₂ reduction potential for low-carbon vehicles?** *APPLIED ENERGY*
  Haugen, M. J., Paoli, L., Cullen, J., Cebon, D., Boies, A. M.
  2021; 283
- **Open-source modelling of aerosol dynamics and computational fluid dynamics: Nodal method for nucleation, coagulation, and surface growth** *COMPUTER PHYSICS COMMUNICATIONS*
  Woo, M., Nishida, R. T., Schriefl, M. A., Stettler, M. E. J., Boies, A. M.
  2021; 261
- **Accelerated measurements of aerosol size distributions by continuously scanning the aerodynamic aerosol classifier** *AEROSOL SCIENCE AND TECHNOLOGY*
  Johnson, T. J., Symonds, J. P. R., Olfert, J. S., Boies, A. M.
  2021; 55 (2): 119-141
- **Photo-rechargeable Zinc-Ion Capacitors using V₂O₅-Activated Carbon Electrodes** *ACS ENERGY LETTERS*
  Boruah, B., Wen, B., Nagane, S., Zhang, X., Stranks, S. D., Boies, A., De Volder, M.
  2020; 5 (10): 3132-3139
- **Modelling and evaluation of a biomethane truck for transport performance and cost** *TRANSPORTATION RESEARCH PART D-TRANSPORT AND ENVIRONMENT*
  Madhusudhanan, A. K., Na, X., Boies, A., Cebon, D.
  2020; 87
- **High energy density anodes using hybrid Li intercalation and plating mechanisms on natural graphite** *ENERGY & ENVIRONMENTAL SCIENCE*
  Son, Y., Lee, T., Wen, B., Ma, J., Jo, C., Cho, Y., Boies, A., Cho, J., De Volder, M.
  2020; 13 (10): 3723-3731
- **Precise Catalyst Production for Carbon Nanotube Synthesis with Targeted Structure Enrichment** *CATALYSTS*
  Zhang, X., Deng, Y., Graves, B., De Volder, M., Boies, A.
  2020; 10 (9)
- **High-precision solid catalysts for investigation of carbon nanotube synthesis and structure** *SCIENCE ADVANCES*
  Zhang, X., Graves, B., De Volder, M., Yang, W., Johnson, T., Wen, B., Su, W., Nishida, R., Xie, S., Boies, A.
  2020; 6 (40)
- **Multi-technique physico-chemical characterization of particles generated by a gasoline engine: Towards measuring tailpipe emissions below 23 nm** *ATMOSPHERIC ENVIRONMENT*
  Focsa, C., Duca, D., Noble, J. A., Vojkovic, M., Carpentier, Y., Pirim, C., Betrancourt, C., Desgroux, P., Tritscher, T., Spielvogel, J., Rahman, M., Boies, A., Lee, et al
  2020; 235
- **Thermodynamic and experimental evaluation of a cloud chamber for ultrafine particle detection** *SENSORS AND ACTUATORS A-PHYSICAL*
  Yang, W., Boies, A. M.
  2020; 310

- **Weakly Coupled Piezoelectric MEMS Resonators for Aerosol Sensing** *SENSORS*
  Chellasivalingam, M., Imran, H., Pandit, M., Boies, A. M., Seshia, A. A.
  2020; 20 (11)
- **Measuring the bipolar charge distribution of nanoparticles: Review of methodologies and development using the Aerodynamic Aerosol Classifier** *JOURNAL OF AEROSOL SCIENCE*
  Johnson, T. J., Nishida, R. T., Irwin, M., Symonds, J. P. R., Olfert, J. S., Boies, A. M.
  2020; 143
- **Comprehensive characterization of mainstream marijuana and tobacco smoke** *SCIENTIFIC REPORTS*
  Graves, B. M., Johnson, T. J., Nishida, R. T., Dias, R. P., Savareear, B., Harynuk, J. J., Kazemimanesh, M., Olfert, J. S., Boies, A. M.
  2020; 10 (1): 7160
- **From Collisions to Bundles: An Adaptive Coarse-Grained Model for the Aggregation of High-Aspect-Ratio Carbon Nanotubes** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Kateris, N., Kloza, P. A., Qiao, R., Elliott, J. A., Boies, A.
  2020; 124 (15): 8359-8370
- **Plasma production of nanomaterials for energy storage: continuous gas-phase synthesis of metal oxide CNT materials via a microwave plasma** *NANOSCALE*
  Graves, B., Engelke, S., Jo, C., Baldovi, H. G. G., De la Verpilliere, J., De Volder, M., Boies, A.
  2020; 12 (8): 5196-5208
- **Characterization of particle number counters based on pulsed-mode diffusion charging** *AEROSOL SCIENCE AND TECHNOLOGY*
  Schriefl, M. A., Nishida, R. T., Knoll, M., Boies, A. M., Bergmann, A.
  2020; 54 (7): 772-789
- **A Simple Method for Measuring Fine-to-Ultrafine Aerosols Using Bipolar Charge Equilibrium** *ACS SENSORS*
  Nishida, R. T., Johnson, T. J., Hassim, J. S., Graves, B. M., Boies, A. M., Hochgreb, S.
  2020; 5 (2): 447-453
- **High-temperature condensation particle counter using a systematically selected dedicated working fluid for automotive applications** *AEROSOL SCIENCE AND TECHNOLOGY*
  Kupper, M., Kraft, M., Boies, A., Bergmann, A.
  2020; 54 (4): 381-395
- **MASS TUNING IN WEAKLY COUPLED LOW-Q PIEZOELECTRIC MEMS RESONATOR ARRAYS FOR PARTICULATE SENSING**
  Chellasivalingam, M., Graves, B., Boies, A., Seshia, A. A., IEEE
  IEEE.2020: 761-764
- **Continuous-Flow Synthesis of Carbon-Coated Silicon/Iron Silicide Secondary Particles for Li-Ion Batteries** *ACS NANO*
  Jo, C., Groombridge, A. S., De La Verpilliere, J., Lee, J., Son, Y., Liang, H., Boies, A. M., De Volder, M.
  2020; 14 (1): 698-707
- **MEMS Based Gravimetric Sensor for the Detection of Ultra-Fine Aerosol Particles**
  Chellasivalingam, M., Somappa, L., Boies, A. M., Baghini, M., Seshia, A. A., IEEE
  IEEE.2020
- **Direct spinning of CNT fibres: Past, present and future scale up** *CARBON*
  Smail, F., Boies, A., Windle, A.
  2019; 152: 218-232
- **Measuring aerosol active surface area by direct ultraviolet photoionization and charge capture in continuous flow** *AEROSOL SCIENCE AND TECHNOLOGY*
  Nishida, R. T., Johnson, T. J., Boies, A. M., Hochgreb, S.
  2019; 53 (12): 1429-1440
- **The mechanical and electrical properties of direct-spun carbon nanotube mat-epoxy composites** *CARBON*
  Tan, W., Stallard, J. C., Smail, F. R., Boies, A. M., Fleck, N. A.
  2019; 150: 489-504

- **Agglomeration Dynamics of 1D Materials: Gas-Phase Collision Rates of Nanotubes and Nanorods** *SMALL*
  Boies, A. M., Hoecker, C., Bhalerao, A., Kateris, N., de la Verpilliere, J., Graves, B., Smail, F.
  2019; 15 (27): e1900520
- **A methodology to relate black carbon particle number and mass emissions** *JOURNAL OF AEROSOL SCIENCE*
  Teoh, R., Stettler, M. E. J., Majumdar, A., Schumann, U., Graves, B., Boies, A. M.
  2019; 132: 44-59
- **Using portable emissions measurement systems (PEMS) to derive more accurate estimates of fuel use and nitrogen oxides emissions from modern Euro 6 passenger cars under real-world driving conditions** *APPLIED ENERGY*
  Bishop, J. D. K., Molden, N., Boies, A. M.
  2019; 242: 942-973
- **Mapping the parameter space for direct-spun carbon nanotube aerogels** *CARBON*
  Weller, L., Smail, F. R., Elliott, J. A., Windle, A. H., Boies, A. M., Hochgreb, S.
  2019; 146: 789-812
- **Modelling the effect of aerosol polydispersity on unipolar charging and measurement in low-cost sensors** *JOURNAL OF AEROSOL SCIENCE*
  Nishida, R. T., Yamasaki, N. M., Schriefl, M. A., Boies, A. M., Hochgreb, S.
  2019; 130: 10-21
- **High-fidelity characterization on anisotropic thermal conductivity of carbon nanotube sheets and on their effects of thermal enhancement of nanocomposites** *NANOTECHNOLOGY*
  Zhang, X., Tan, W., Smail, F., De Volder, M., Fleck, N., Boies, A.
  2018; 29 (36): 365708
- **The mechanical and electrical properties of direct-spun carbon nanotube mats** *EXTREME MECHANICS LETTERS*
  Stallard, J. C., Tan, W., Smail, F. R., Gspann, T. S., Boies, A. M., Fleck, N. A.
  2018; 21: 65-75
- **Continuous flow chemical vapour deposition of carbon nanotube sea urchins** *NANOSCALE*
  de La Verpilliere, J., Jessl, S., Saeed, K., Ducati, C., De Volder, M., Boies, A.
  2018; 10 (16): 7780-7791
- **Measuring aerosol size distributions with the aerodynamic aerosol classifier** *AEROSOL SCIENCE AND TECHNOLOGY*
  Johnson, T. J., Irwin, M., Symonds, J. P. R., Olfert, J. S., Boies, A. M.
  2018; 52 (6): 655-665
- **Measuring ultrafine aerosols by direct photoionization and charge capture in continuous flow** *AEROSOL SCIENCE AND TECHNOLOGY*
  Nishida, R. T., Boies, A. M., Hochgreb, S.
  2018; 52 (5): 546-556
- **The Dependence of CNT Aerogel Synthesis on Sulfur-driven Catalyst Nucleation Processes and a Critical Catalyst Particle Mass Concentration** *SCIENTIFIC REPORTS*
  Hoecker, C., Smail, F., Pick, M., Weller, L., Boies, A. M.
  2017; 7: 14519
- **The influence of carbon source and catalyst nanoparticles on CVD synthesis of CNT aerogel** *CHEMICAL ENGINEERING JOURNAL*
  Hoecker, C., Smail, F., Pick, M., Boies, A.
  2017; 314: 388-395
- **How Well Do We Know the Future of CO₂ Emissions? Projecting Fleet Emissions from Light Duty Vehicle Technology Drivers** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Martin, N. P. D., Bishop, J. D. K., Boies, A. M.
  2017; 51 (5): 3093-3101
- **Modelling of direct ultraviolet photoionization and charge recombination of aerosol nanoparticles in continuous flow** *JOURNAL OF APPLIED PHYSICS*
  Nishida, R. T., Boies, A. M., Hochgreb, S.

2017; 121 (2)

- **Effective density and volatility of particles sampled from a helicopter gas turbine engine** *AEROSOL SCIENCE AND TECHNOLOGY*
  Olfert, J. S., Dickau, M., Momenimovahed, A., Saffaripour, M., Thomson, K., Smallwood, G., Stettler, M. E. J., Boies, A., Sevcenco, Y., Crayford, A., Johnson, M.
  2017; 51 (6): 704-714
- **Emissions, performance, and design of UK passenger vehicles** *INTERNATIONAL JOURNAL OF SUSTAINABLE TRANSPORTATION*
  Martin, N. D., Bishop, J. K., Boies, A. M.
  2017; 11 (3): 230-236
- **Engine maps of fuel use and emissions from transient driving cycles** *APPLIED ENERGY*
  Bishop, J. D. K., Stettler, M. E. J., Molden, N., Boies, A. M.
  2016; 183: 202-217
- **Quantifying the role of vehicle size, powertrain technology, activity and consumer behaviour on new UK passenger vehicle fleet energy use and emissions under different policy objectives** *APPLIED ENERGY*
  Bishop, J. D. K., Martin, N. P. D., Boies, A. M.
  2016; 180: 196-212
- **Fuel Sulfur and Iron Additives Contribute to the Formation of Carbon Nanotube-like Structures in an Internal Combustion Engine** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Swanson, J. J., Febo, R., Boies, A. M., Kittelson, D. B.
  2016; 3 (10): 364-368
- **Greenhouse Gas and Noxious Emissions from Dual Fuel Diesel and Natural Gas Heavy Goods Vehicles** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Stettler, M. E. J., Midgley, W. J. B., Swanson, J. J., Cebon, D., Boies, A. M.
  2016; 50 (4): 2018-2026
- **Improved sizing of soot primary particles using mass-mobility measurements** *AEROSOL SCIENCE AND TECHNOLOGY*
  Dastanpour, R., Rogak, S. N., Graves, B., Olfert, J., Eggersdorfer, M. L., Boies, A. M.
  2016; 50 (2): 101-109
- **Methodology for quantifying the volatile mixing state of an aerosol** *AEROSOL SCIENCE AND TECHNOLOGY*
  Dickau, M., Olfert, J., Stettler, M. E. J., Boies, A., Momenimovahed, A., Thomson, K., Smallwood, G., Johnson, M.
  2016; 50 (8): 759-772
- **Catalyst nanoparticle growth dynamics and their influence on product morphology in a CVD process for continuous carbon nanotube synthesis** *CARBON*
  Hoecker, C., Smail, F., Bajada, M., Pick, M., Boies, A.
  2016; 96: 116-124
- **Energy, carbon dioxide and water use implications of hydrous ethanol production** *ENERGY CONVERSION AND MANAGEMENT*
  Saffy, H. A., Northrop, W. F., Kittelson, D. B., Boles, A. M.
  2015; 105: 900-907
- **Can UK passenger vehicles be designed to meet 2020 emissions targets? A novel methodology to forecast fuel consumption with uncertainty analysis** *APPLIED ENERGY*
  Martin, N. P. D., Bishop, J. D. K., Choudhary, R., Boies, A. M.
  2015; 157: 929-939
- **Air quality evaluation of London Paddington train station** *ENVIRONMENTAL RESEARCH LETTERS*
  Chong, U., Swanson, J. J., Boies, A. M.
  2015; 10 (9)
- **Unsteady bipolar diffusion charging in aerosol neutralisers: A non-dimensional approach to predict charge distribution equilibrium behaviour** *JOURNAL OF AEROSOL SCIENCE*
  de La Verpilliere, J. L., Swanson, J. J., Boies, A. M.
  2015; 86: 55-68

- **Effective Density and Mass-Mobility Exponent of Aircraft Turbine Particulate Matter** *JOURNAL OF PROPULSION AND POWER*
  Johnson, T. J., Olfert, J. S., Symonds, J. P. R., Johnson, M., Rindlisbacher, T., Swanson, J. J., Boies, A. M., Thomson, K., Smallwood, G., Walters, D., Sevcenco, Y., Crayford, A., Dastanpour, et al
  2015; 31 (2): 573-582

- **Particle Emission Characteristics of a Gas Turbine with a Double Annular Combustor** *AEROSOL SCIENCE AND TECHNOLOGY*
  Boies, A. M., Stettler, M. E. J., Swanson, J. J., Johnson, T. J., Olfert, J. S., Johnson, M., Eggersdorfer, M. L., Rindlisbacher, T., Wang, J., Thomson, K., Smallwood, G., Sevcenco, Y., Walters, et al
  2015; 49 (9): 842-855

- **Response to Comment on "Effects of Ethanol on Vehicle Energy Efficiency and Implications on Ethanol Life-Cycle Greenhouse Gas Analysis"** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Yan, X., Inderwildi, O. R., King, D. A., Boies, A. M.
  2014; 48 (16): 9953-9954

- **Cost-effectiveness of alternative powertrains for reduced energy use and CO₂ emissions in passenger vehicles** *APPLIED ENERGY*
  Bishop, J. D. K., Martin, N. P. D., Boies, A. M.
  2014; 124: 44-61

- **Lifecycle greenhouse gas footprint and minimum selling price of renewable diesel and jet fuel from fermentation and advanced fermentation production technologies** *ENERGY & ENVIRONMENTAL SCIENCE*
  Staples, M. D., Malina, R., Olcay, H., Pearlson, M. N., Hileman, J. I., Boies, A., Barrett, S. R. H.
  2014; 7 (5): 1545-1554

- **Air Quality and Climate Impacts of Alternative Bus Technologies in Greater London** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Chong, U., Yim, S. H. L., Barrett, S. R. H., Boies, A. M.
  2014; 48 (8): 4613-4622

- **Updated Correlation Between Aircraft Smoke Number and Black Carbon Concentration** *AEROSOL SCIENCE AND TECHNOLOGY*
  Stettler, M. E. J., Swanson, J. J., Barrett, S. R. H., Boies, A. M.
  2013; 47 (11): 1205-1214

- **Distributed energy resource system optimisation using mixed integer linear programming** *ENERGY POLICY*
  Omu, A., Choudhary, R., Boies, A.
  2013; 61: 249-266

- **Global Civil Aviation Black Carbon Emissions** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Stettler, M. E. J., Boies, A. M., Petzold, A., Barrett, S. R. H.
  2013; 47 (18): 10397-10404

- **Effects of Ethanol on Vehicle Energy Efficiency and Implications on Ethanol Life-Cycle Greenhouse Gas Analysis** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Yan, X., Inderwildi, O. R., King, D. A., Boies, A. M.
  2013; 47 (11): 5535-5544

- **Quantifying the uncertainties in life cycle greenhouse gas emissions for UK wheat ethanol** *ENVIRONMENTAL RESEARCH LETTERS*
  Yan, X., Boies, A. M.
  2013; 8 (1)

- **Chemical Kinetics of Photoinduced Chemical Vapor Deposition: Silica Coating of Gas-Phase Nanoparticles** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Boies, A. M., Calder, S., Agarwal, P., Lei, P., Girshick, S. L.
  2012; 116 (1): 104-114

- **Implications of local lifecycle analyses and low carbon fuel standard design on gasohol transportation fuels** *ENERGY POLICY*
  Boies, A. M., McFarlane, D., Taff, S., Watts, W. F., Kittelson, D. B.
  2011; 39 (11): 7191-7201

- **Gas-phase production of gold-decorated silica nanoparticles** *NANOTECHNOLOGY*
  Boies, A. M., Lei, P., Calder, S., Girshick, S. L.

2011; 22 (31): 315603