**IEEE NUCLEAR AND PLASMA SCIENCES SOCIETY**
**PULSED POWER SCIENCE AND TECHNOLOGY COMMITTEE ELECTION**
**For a Four-Year Term 1 January 2027 – 31 December 2030**
**(VOTE FOR NO MORE THAN FOUR)**

**MAX FLYNN** (GSM'20-M'24) studies the design, use, and reliability of gas-insulated spark gaps for large pulsed power networks via combined experiment and modeling at Sandia National Laboratories. Max received a PhD in electrical engineering at Texas Tech University in May 2024 on the use of Boltzmann equation solvers for the study of electrically insulating gases. He is also a technical contributor and volunteer for the LXCat project, a database of foundational low temperature plasma references and resources such as collision cross sections and electron swarm parameters.

**Statement:** I've become increasingly involved with the community since graduation and want to begin having a more formal influence especially through conference, workshops, review and etc.

**HENRY GAUS** (S'17-GSM'18-M'19-SM'24) received his master's and bachelor's degrees in electrical engineering from Texas Tech University. His thesis research was titled "Armature Performance in Miniature Flux Compression Generators" and his committee consisted of Dr. John Mankowski (chair) and Dr. Andreas Neuber (committee member). During his tenure at Texas Tech, Henry's leadership skills were recognized when he was elected to President of the local Texas Tech IEEE student branch. He further showed his leadership skills during his graduate career by founding the first ever Nuclear & Plasma Sciences Society student branch chapter in the United Sates. He came to Los Alamos National Laboratory after doing research for 2 years in the Pulsed Power laboratory at Texas Tech University. His time spent at the Pulsed Power laboratory gave him the experience needed to flourish on the Pulsed Power team at LANSCE. He has served as one of the leading pulsed power engineers since his arrival at LANL in 2019. In early 2022, he was asked to serve as the Team Leader of the DC & Pulsed Power team and led an efficacious rebuilding of the team. In September of 2022 Henry was asked to serve as the Deputy Group Leader of the AOT-RFE (accelerator operations & technology – radio frequency engineering) group. Beginning in 2024 Henry served on the Northern New Mexico IEEE executive board as the membership development chair. Henry has also been appointed as the Task Lead over beam chopper development for the Los Alamos Modernization Project (LAMP). In 2025 Henry agreed to serve a two-year term on the IEEE Nuclear and Plasma Science Society Standing Technical Committee for Pulsed Power Science and Technology. In April 2025 Henry agreed to take on the Team Leader role for the newly formed Pulsed Power team under the stewardship of AOT-AE.

**Statement:** I am pleased to express my interest in continuing to serve on the IEEE Nuclear and Plasma Sciences Society Pulsed Power Science and Technology Committee. I have served as a member of the committee since 2025 and would welcome the opportunity to continue that service through a full four-year term beginning in 2027.

Pulsed power has been the primary focus of my entire engineering career. At Los Alamos National Laboratory, I support the operation, maintenance, and modernization of pulsed-power systems associated with the Los Alamos Neutron Science Center linear accelerator. I also serve as the Task Lead for beam-chopper technology maturation for the Los Alamos Accelerator Modernization Project, where I oversee the development of advanced fast-pulsed systems for future accelerator applications. These experiences have provided me with a broad perspective on pulsed-power research, system development, project execution, and the long-term operation of mission-critical accelerator systems.

I am committed to promoting pulsed-power science and technology across academia, national laboratories, and industry. I particularly enjoy engaging with students and early-career professionals and have spoken at several universities about pulsed-power technology and the diverse career opportunities available within the field. I have also supported IEEE membership development through the Northern New Mexico and Los Alamos Section.

My involvement with IEEE NPSS began during my collegiate years, when I founded the first NPSS Student Branch Chapter at Texas Tech University. Since then, I have remained actively engaged in the IEEE pulsed-power community and am eager to contribute further through committee service and support for the organization of the IEEE International Pulsed Power Conference.

Serving on the Pulsed Power Science and Technology Committee has been a valuable opportunity to contribute to the professional community that has supported my career. I would be honored to continue representing the pulsed-power community and to serve a full four-year term beginning in 2027.

**ANTON GUSEV** (S'18-M'19) was born in Miass, Russia, in 1988. He received the M.S. degree in electrophysics from Ural Federal University (UrFU), Yekaterinburg, Russia, in 2012, and the Ph.D. degree in engineering sciences from the Institute of Electrophysics, Ural Branch of the Russian Academy of Sciences (IEP), Yekaterinburg, in 2019.

From 2008 to 2019, he was with IEP as an Intern, a Ph.D. Student, and a Junior Researcher with the Pulsed Power Laboratory. At the same time, from 2014 to 2019, he was with UrFU as a Senior Teacher. In 2019, he became a Post-Doctoral Researcher with the Université de Pau et des Pays de l'Adour (UPPA), Pau, France, where he has been an Assistant Professor with the Laboratoire des Sciences de l'Ingénieur Appliquées à la Mécanique et au Génie Électrique (SIAME Laboratory) from 2020 to 2025. Since 2025, he is an Associate Professor at UPPA. His research interests include semiconductor physics, high-power semiconductor switches, and high-voltage solid-state generators, which provide nano- and subnanosecond pulses.

Dr. Gusev is a member of the International Society on Pulsed Power Applications (ISP) and the Association for the Advancement of Pulsed Power (A2P2). He has been awarded the Young Researcher at major international pulsed power conferences (the Energy Fluxes and Radiation Effects (EFRE) 2016, the Euro-Asian Pulsed Power Conference (EAPPC) 2018, and the Gas Discharge Plasmas and Their Applications (GDP) 2021), including two supported by IEEE Pulsed Power Conference (PPC) 2017 and the IEEE International Power Modulator and High Voltage Conference (IPMHVC) 2018.

**Statement:** The main research domain is solid-state pulsed power with particular focus on semiconductor opening switches and impact-ionization closing switches. Physics of semiconductor devices in extreme conditions and their applications in high-voltage nanosecond pulse generators were always a priority during my scientific career. Numerical simulation and manufacturing of semiconductor devices, as well as applications of pulsed power systems such as directed energy and cold plasma chemistry, can be highlighted among recent areas of interest. I would be happy to serve as a member of the IEEE Nuclear and Plasma Sciences Society if my experience fits the expectations.

**SHAN HE** (GSM'19-M'22-SM'24) received the B.S. degree in electrical engineering from Northeast Electric Power University, Jilin, China, in 2015, the M.S. degree in electrical engineering from Zhejiang University, Hangzhou, China, in 2018, and the Ph.D. degree in electrical engineering from Aalborg University, Aalborg, Denmark, in 2022.

From 2022 to 2025, he worked as a Postdoc with Department of Energy, Aalborg University, Aalborg, Denmark. In 2021, he was a Visiting Researcher with RWTH Aachen University, Aachen, Germany. In 2023, he was a Research Associate with Kiel University, Kiel, Germany. In 2025, he was a Visiting Researcher with Norwegian University of Science and Technology, Tronholm, Norway. He is currently a Full Professor with School of Electric Engineering and Automation, Hefei University of Technology, China. His research interests include power electronics for pulsed power, nuclear fusion, renewable energy integration, and energy storage.

Dr. He was the recipient of Nordic Energy Challenge Award, Future Digileader Award, IES-SYPA Award, and PCMP Best Reviewer Award. He served as Guest Associate Editor for IEEE TRANSACTIONS ON POWER ELECTRONICS, Guest Managing Editor for INTERNATIONAL JOURNAL OF ELECTRICAL POWER & ENERGY SYSTEMS, Associate Editor for Q1 Journals PROTECTION AND CONTROL OF MODERN POWER SYSTEMS, ENGINEERED SCIENCE.

**Statement:** I am currently working on the power supply and the pulsed power technology for nuclear fusion. In addition, I am in collaboration with Institute of Plasma Physics, Chinese Academy of Sciences focusing on the nuclear fusion. On the other hand, I can exchange ideas with experts in pulsed power and make a contribution to this emerging are if I can join PPST technical committee.

**ALEXANDER JOHNSTON** (S'18-GSM'19-M'22) was born in Illinois. He earned his Bachelor of Science in Electrical Engineering from the University of Texas at Arlington (UTA) in Arlington, Texas in May 2019. He earned his PhD in Electrical Engineering from the same in May 2022. During his undergraduate tenure time, he began working as a research assistant in the UTA Pulsed Power & Energy Lab (PPEL). This work continued into his graduate studies where he focused on the integration and control of energy storage and power electronics into larger power architectures. This work transitioned directly into his dissertation research, which focused on the development and verification & validation of black box power electronic converter models for similar applications. Since graduation, he has worked as a Postdoctoral Fellow for the PPEL and as a consultant to several different technology ventures through his own small business, Johnston Technology Associates. Recently he joined the faculty in the Electrical Engineering Department at UTA as an Assistant Professor. He is also a consultant working for NoblisMSD, supporting the Naval Surface Warfare Center – Philadelphia Division with problems related to power and energy in the next generation fleet. His research interests are in power electronics, pulsed power, energy storage, and data science.

**Statement:** In 2018, I joined the Pulsed Power and & Energy Lab at the University of Texas at Arlington under my advisor David Wetz. Through his active involvement in the PPS&T committee, I was able to be directly involved as a student attending conferences such as PPC and IPMHVC. This was an exciting and enriching time to learn and meet with people around the globe. Since joining the faculty at the University of Texas at Arlington, I have continued working in the conference circuit including being the Publications Chair of the ESTS 2025 conference, the Young Professionals Chair at the IPMHVC 2026, and now the Technical Chair of PPC 2029.

I would be thrilled to receive your vote to join the PPS&T committee. I believe my research experience and love of conferences, on the attending and on the planning side, would add valuable skills and aid in the continuation of effective sharing and growth of the PPS&T and wider NPSS communities.

**IGOR TOMOSHKIN** (M'07-SM'14) I graduated from Moscow State University (MSU) in 1992 with a Degree in Physics (MPhys equivalent) and obtained a PhD degree from the Imperial College of Science, Technology and Medicine (ICSTM, London) in 2001. Following the completion of my doctoral studies, I joined the Department of Electronic and Electrical Engineering at the University of Strathclyde in Glasgow, Scotland. I currently serve as a Full Professor and Co-Lead of the High Voltage Technologies Research Group, the Group includes 10 members of academic and research staff and PhD researchers.

Over the course of my career, I focused on different aspects of pulsed power, pulsed plasmas and high voltage engineering. During my work at the University of Strathclyde, I have successfully secured and led in the capacities of both Principal Investigator and Co-Investigator more than 40 research projects supported by The Engineering and Physical Sciences Research Council (UK), The UK Space Agency, British Council, The Scottish Government, The Royal Academy of Engineering, The Royal Society, Sandia National Laboratories and major University industrial partners including Halliburton, BXPL and others.

I coordinated research projects in the field of: development of gas-filled plasma closing switches, environmentally friendly and novel dielectric fluids for pulsed power applications (including nano-fluids), breakdown characteristics of the composite dielectric systems, plasma discharges in liquids and gases, development and characterisation of underwater pulsed plasma pressure sources, plasma drilling in terrestrial and space environment, impulsive micro-electrostatic precipitation of fine air-borne particles, oxidation by transient plasma, pulsed electric field and plasma technologies for environmental, bio-medical and agricultural applications. I have successfully supervised 20 PhD students to completion in these research areas. Currently, I am leading, co-leading and supervising several research projects supported by and aligned with the interests of several major University industrial partners. I authored and co-authored 85 research papers published in peer reviewed journals.

I am a Senior Member of the IEEE and a Fellow of the UK Higher Education Academy.

**Statement:** During my 34-year academic and research career, I have developed extensive expertise in pulsed power and plasma technologies. Serving as a researcher, Co-Investigator, and Principal Investigator, I have participated in and led diverse research programs focused on fundamental aspects and pioneering practical pulsed power applications to address complex industrial and environmental challenges.

I am deeply committed to mentoring the next generation of researchers and engineers. I am leading two teams of faculty members and teaching assistants in the delivery of 3 core modules at the University of Strathclyde: Electromagnetism, High Voltage Technology and Electromagnetic Compatibility and Principles of High Voltage Technology promoting pulsed power and plasma technologies and attracting new researchers to this field. Currently, I am supervising 5 PhD researchers who conduct their projects in the field of pulsed power and transient plasmas. I will continue to encourage students undertake pulsed power, plasma projects and to become IEEE and NPSS members.

My research work is integrated with IEEE publications; 65% of my peer-reviewed papers are published across IEEE journals and magazines, with 36% of my publications appearing specifically in the IEEE Transactions on Plasma Science (TPS), a journal I also routinely support as a peer reviewer. As an active researcher I regularly present my work at pulsed power flagship conferences supported by NPSS: the IEEE Pulsed Power and Euro-Asian Pulsed Power Conferences.

Beyond my research contributions, I have a strong track record of service to the pulsed power community. I served on the Organising Committee for the IEEE Pulsed Power Conference in 2017, since 2014, I have served as a member of the Technical Program Committee for the IEEE International Power Modulator and High Voltage Conference (IPMHVC), I am a member of the EAPPC-BEAMS-EML 2026 Technical Programme committee. I was elected as a voting member of the IEEE NPSS Standing Technical Committee for Pulsed Power Science and Technology (PPST) for the 2018-2021 term.

These experiences have thoroughly prepared me to serve effectively on the NPSS PPST Standing Technical Committee. If elected, I will leverage my expertise, experience, and dedication to advance pulsed power and plasma science and engineering. My priorities will be to attract emerging talent to the field and to promote collaboration and knowledge exchange among researchers, academics, and industry professionals.

**CHRIS WILLIAMSON** (GSM'19-M'21) received the B.Eng. (Hons.) and M.Eng. degrees in electrical, electronic, and energy engineering from Glasgow Caledonian University, Glasgow, U.K., in 2017 and 2018, respectively, and the Ph.D. degree in electronic and electrical engineering from the University of Strathclyde, Glasgow, in 2022.

He is currently a Research Associate with the High Voltage Technologies Research Group, University of Strathclyde. His research interests encompass pulsed power technologies, novel switching architectures, high voltage insulation systems, the application of ester-based liquid dielectrics in pulsed power machines, impulse and nonstandard-voltage breakdown of liquid dielectrics with an emphasis on environmentally sustainable insulating fluids, interfacial flashover of composite insulating systems, and sustainable approaches to high voltage insulation and switching for next-generation pulsed power systems. His previous research has also included the application of semiconductor devices for attestation and protection in Internet of Things (IoT) applications and devices.
Dr. Williamson is a member of the IEEE Nuclear and Plasma Sciences Society, IEEE Young Professionals, and the IEEE Electron Device Society. He was a recipient of the IET Award, in 2017.

**Statement:** I am honoured to be considered for membership of the IEEE NPSS Pulsed Power Science and Technology Standing Technical Committee and welcome the opportunity to contribute to the continued advancement of pulsed power science and its global research community. My research focuses on novel switching technologies, high voltage insulation systems, and the application of environmentally sustainable dielectric materials in pulsed power systems, providing a broad perspective on both fundamental and applied aspects of the field. Through my research activities, peer-reviewed publications, and participation in international conferences, I have developed a strong appreciation for the importance of technical collaboration, knowledge exchange, and interdisciplinary engagement in advancing pulsed power science.

As a member of the Standing Technical Committee, I hope to contribute to the continued growth and evolution of the pulsed power community by drawing on my research experience to support technical excellence, encourage collaboration across the international research community, and facilitate the exchange of ideas that drive innovation within the field. Beyond my research activities, my experience in research community leadership has reinforced the importance of fostering inclusive, collaborative environments that support professional development and encourage active participation across all career stages. I am particularly motivated to strengthen the sense of community within the pulsed power field and help develop a robust pipeline of emerging researchers to ensure the long-term vitality, resilience, and continued innovation of the discipline. I would welcome the opportunity to contribute my technical expertise, enthusiasm, and commitment to professional service in support of the IEEE NPSS pulsed power community.

**MATTHEW WOODYARD** (GSM'17-M'22) received the B.Eng. degree (Hons.) and Ph.D. from the Plasma and Pulsed Power Group, Loughborough University, Leicestershire, U.K, in 2015 and 2023 respectively. He joined AWE in 2022 and is currently the Technical Lead for Pulsed Power within the Orion Laser Facility. His research interests include Tesla transformer driven pulsed power generation, large-volume intense Pulsed Electric Field (PEF) applications in water, low-frequency magnetic field penetration of thick metallic shields, novel High-Voltage (HV) switch design and 3-D electromagnetic modelling of pulsed power systems. Matthew is the Chairman of the UK Pulsed Power Symposium and a Member of the International Society of Pulsed Power (ISP) for which he lead the organisation of the ISP 2026 Pulsed Power Workshop held in Oxford. He was also recipient of the EAPPC Outstanding Young Researcher Award in 2021.

**Statement:** The IEEE is the largest professional organisation in the world and by being part of the Pulsed Power Science and Technology committee within the NPSS will give me the opportunity to serve and to vote in decisions that will help the society move in a direction that benefits both current members and attracts new ones, specifically furthering the reach of the society in the UK and advance the study and impact of pulsed power. Since joining AWE I have had the opportunity to take an active role in developing programmes of work to improve the technical capabilities of the varied pulsed power teams as well as maintaining close connections to academia, including shaping a pulsed power focused master's degree course for a small number of candidates in the UK. It is my intention that I will be able to build on these existing skills and develop them further for benefit of the NPSS. Whilst the international pulsed power community is relatively small, becoming a member of the committee will enable me to maintain a wide network and learn from fellow technical leaders whilst also being able to address emerging technical research and support pulsed power related activities. Thank you for your consideration, it would be a privilege to be elected and I would fulfil my duties to the best of my abilities.