SVC Personnel, Directors, and Committees

Effective July 2024 (Rev 1.6)

Overview

SVC Mission: *"To promote technical excellence by providing a global forum for networking, educating, and informing the stakeholders, the technical community & the industrial eco-system on all aspects of industrial vacuum coating, surface engineering and related technologies."*

SVC Vision: *"To provide a dynamic global forum for transitioning and commercializing thin film and surface engineering innovation to industry."*

Interested in Getting Involved? Contact a Board Member.
Interested in Joining a Technical Advisory Committee? Contact a Committee Chair.
Interested in Forming a New Technical Advisory Committee? Contact the Program Chair.
Interested in Joining a Standing Committee? Contact a Committee Chair.

For General Information, Contact the SVC Administrative Team:

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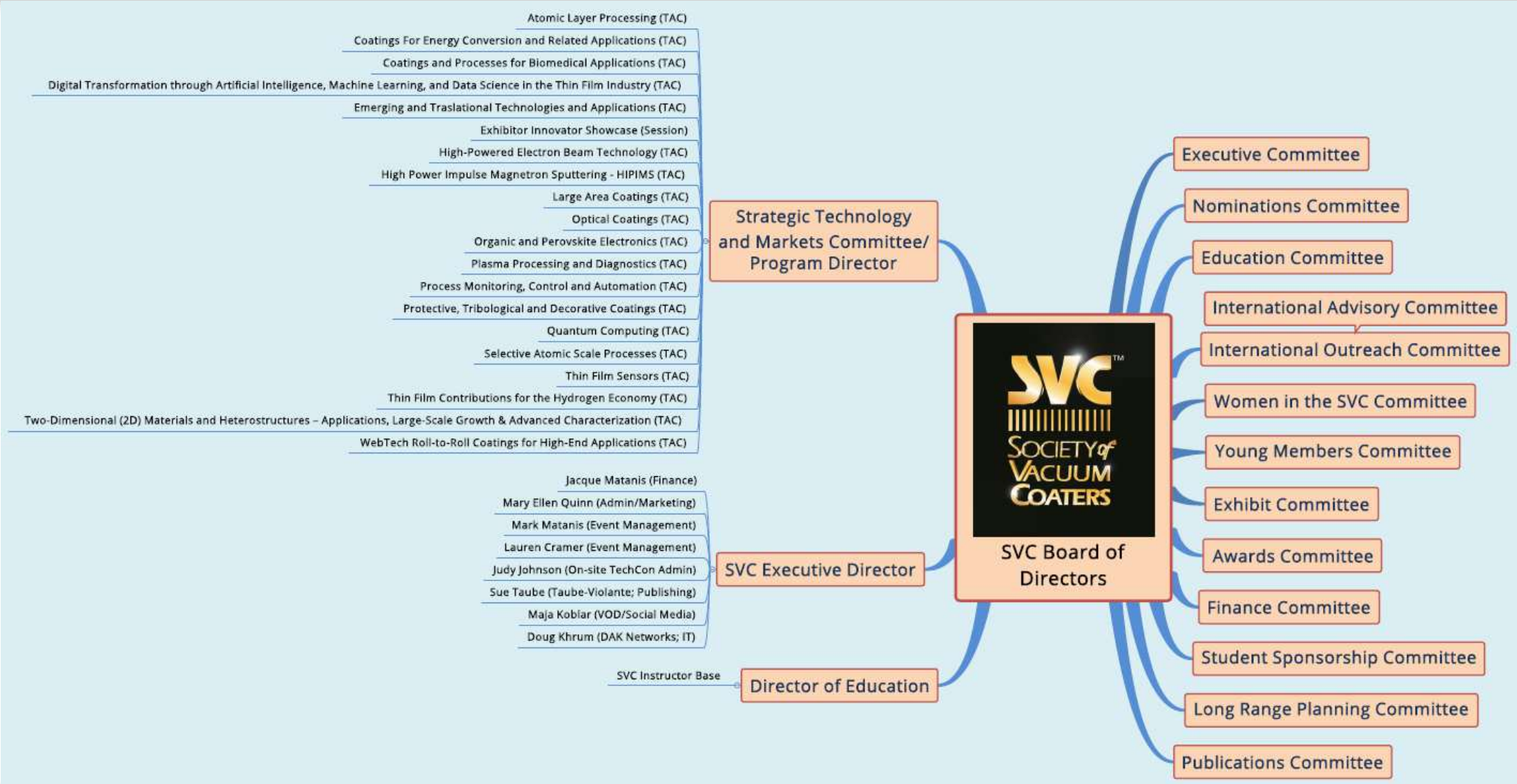
General Committees

Technical Advisory Committees (TACs) & Sessions

SVC Organization Chart



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SVC Officers and Directors

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Years in brackets ( ) denotes the term of Officers and Directors.

SVC Executive Committee

The SVC Executive Committee comprises the elected officers, the past president, and other board members as deemed appropriate by the President of the Society. The committee exists to address specific financial issues and decisions that are put before the SVC as well as to provide specific direction and action interim to board meetings. The executive committee exists to supplement the activities of the Board of Directors and, as with all activities with the SVC, is accountable to the Board. The Executive Committee and Board of Directors oversee the operation and strategic direction of the SVC in-line with our mission statement.

President
Liz Josephson, INTELLIVATION LLC (2024-2026)
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Immediate Past-President
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Years in brackets ( ) denote the terms of Officers and Directors.

SVC Nominations Committee

The SVC Nominating Committee shall be comprised of the immediate Past President as chair, plus three members of the Society selected by the chair of the nominating committee to represent all constituencies of the Society. The nominating committee shall prepare a slate of candidates for each of the Officer or Board positions being vacated at the end of an elected term of office. The number of candidates for the position of Vice President/President Elect shall be at least two; for Treasurer and Secretary shall be at least one; and for Board Director shall be larger than the number of open positions by at least one. Nominees for Board and Officer positions must be members of the Society in good standing.

Immediate Past President, Chair (2024-2026)
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Sarah Williams, Advanced Energy
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SVC Education Committee

Education is an important aspect of the mission of the Society of Vacuum Coaters and the Education Committee is charged by the Board of Directors with overseeing that function. Developing and overseeing courses obviously are an important activity, but the committee also is concerned with education and training as it pertains to the needs of the diverse SVC stakeholder base.

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SVC Exhibit Committee

The Exhibit Committee works closely with the Executive Director and follows the established guidelines to ensure fairness and equality to all exhibitors and exhibiting companies. Exhibitor's evaluation comments are always taken into consideration when planning for the next year's floor plan and functions designed to draw people to the exhibit area.

MISSION

To provide an effective communications conduit between the SVC Exhibitors and the SVC Board of Directors and management to help drive positive change to the TechCon exhibition.

VISION

The Exhibition Committee of the Society of Vacuum Coaters envisions a vibrant platform where exhibitors, presenters, attendees, and the SVC Board engage in meaningful interactions. Our goal is to facilitate collaboration, knowledge exchange, and innovation, to provide the best possible exhibit experience for both exhibitors and visitors.

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SVC Awards Committee

The Awards Committee is charged with the annual selection of the Nathaniel H. Sugerman Award recipient for distinguished achievement. The committee also selects recipients of the SVC Mentors Award, given to those who have made significant contributions to the Society or the vacuum coating industry.

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Clark Bright, Past Chair
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SVC Finance Committee

- The SVC Finance Committee oversees the financial stewardship of the Society. Participation of the Treasurer and President participation are mandatory based on their role. Director participation is required but can be filled by any Director(s) per nomination and approval by the Executive Committee. Finance Committee members are authorized signatories on the SVC's Investment and Operational Accounts. Primary roles and responsibilities of the SVC Finance Committee are as follows:

- **Oversight**: The Committee oversees the financial performance of the SVC.
- **Transparency**: The Committee provides a direct link to the BOD to develop controls, policies and reporting standards.
- **Compliance**: The committee ensures compliance with those policies and controls in accordance with relevant statutes and policy making groups such as FASB and advises on policies and structures to mitigate risk.
- **Verification**: The Committee also functions as an audit committee and is the reviewer and signer of Tax returns. The Committee approves the engagement of outside accounting and audit resources.
- **Strategy**: The Committee advises and supports the BOD in the strategic development and financing of the SVC
- **Investments**: The Committee oversees the SVC's investment activity, reporting its findings at least annually to the BOD. The Committee develops investment strategies, aligned with SVC goals, for BOD approval, and employs professional financial firms to execute on the SVC's goals.

Members:

Treasurer/Chair
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Vice President/Member
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SVC Student Sponsorship Committee

The Student Sponsorship Committee (SSC) was established in 2001 and it is composed of members from different countries. Every year the SSC selects the most promising students and financially supports their participation at the Technical Conference. This sponsorship is meant to stimulate interest among future young scientists in the subjects and activities of the SVC, helps to involve more personnel from academic institutions (such as the students' professors), and also encourages new contacts that can lead to employment opportunities.

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SVC Long Range Planning Committee (charter)

The Long Range Planning is chartered to focus on long range planning and dynamic shifts for the Society of Vacuum Coaters with a focus on financial health and technical relevance. The Committee should provide guidance on new committees, volunteers, corporate sponsors and work with the ST&M committee regarding new and innovative technical platforms. The Society and stakeholder interests include but are not limited to a strong exhibit, networking and personal interactions, multi-faceted attendee engagement opportunities such as educational tutorials, technical program, exhibition, international attendance, structural flexibility to accommodate opportunities to partner with other organizations, and/ or accommodate continued organic growth should be considered and maintained. Any changes to the current SVC should be made within the framework of income and revenue considerations to the Society.

The Committee will be chaired by the Vice President or President and consist of Society members, outside individuals that may possess exceptional stakeholder relevance and/or perspective, along with a minimum of three members from the Board of Directors. The members should be familiar with and in contact with the operation of organizations similar to the SVC and be associated with entities which are involved with international trade. Reports and recommendations will be issued at bi-annual Board of Directors meetings.

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SVC International Outreach Committee (charter)

The main tasks and responsibilities of the **International Outreach Committee** are increasing and enrichment of the international membership in the SVC and extending the SVC vision and mission as the global source for learning, applying and advancing vacuum coating, surface engineering and related technologies.

The **International Outreach Committee** is established to identify challenges, opportunities, and proposed solutions to both engage a global audience and represent their best interests within the SVC organization. Fundamental elements of the SVC brand and stakeholder interests for the TechCon will be preserved; including but not limited to:

- strong exhibition footprint and international participation,
- networking and personal interactions,
- multi-faceted attendee engagement opportunities such as the educational tutorials, technical conference program, industrial workshops, exhibition, international attendance, student sponsorship/scholarship, and career placement
- accommodation of opportunities to partner/align with other organizations,
- promote continued organic growth.

The **International Outreach Committee** members will identify key international thought leadership in selected countries to spread information and increase interest about the SVC TechCon and to inform, educate, and engage the members, technical community, and the public on all aspects of vacuum coating, surface engineering and related technologies through the dissemination of promotional and marketing materials.
- The **International Outreach Committee** invites well positioned individuals from selected countries to become members of the **SVC International Advisory Committee** and the membership list of the International Advisory Committee will be reviewed annually.
- The **International Outreach Committee** shall also solicit concepts and ideas to foster local engagement from these thought leaders and refine/represent them to the SVC BOD for consideration and implementation.
- The **International Outreach Committee** members shall consist of SVC members to represent broad SVC strategic interests and may also include members from similar organizations who will be able to share their unique solutions and approaches. Team members with intimate familiarity with the operation of similar organizations (particularly program development) as well as extensive international conference/trade show participation are desired. It is anticipated that the team will meet monthly issuing interim reports every 6 months. The committee shall be co-chaired by two individuals, one from academia and one from industry.

The IOC group will meet quarterly via virtual meetings. Individual Committee members will be responsible for communication with selected members of the SVC **International Advisory Committee**.

SVC International Outreach Committee (members)

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SVC International Advisory Committee (charter)

The International Advisory Committee (IAC) is chartered as a Subcommittee of the **International Outreach Committee** (IOC). The IAC was founded to broaden the international outreach of the SVC and to increase the SVC membership and number of international attendees and presenters at the SVC TechCons from countries with rapidly growing economics, technology innovations, new industries and markets. The International Advisory Committee is composed from important highly experienced and well-connected individuals from selected countries, who can spread the SVC mission and provide expert advices and help to the SVC TechCons. The main tasks and responsibilities of the IAC are increasing and enrichment of the international membership in the SVC and extending the SVC vision and mission as the global source for learning, applying and advancing vacuum coating, surface engineering and related technologies.

The **SVC International Advisory Committee** operates under the following operational criteria:

- The IAC member is invited for 2-years period.
- The IAC member should actively promote the SVC vision and mission and distribute information materials about SVC and SVC TechCons in his/her country.
- The IAC member is required to recruit at least 2 abstracts for presentation in the TechCon program.
- The IAC member is granted by the conference fee waiver for the TechCon, provided that he/she stays in the conference hotel during the TechCon.

SVC International Advisory Committee (members)

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New IAC members - 2024

SVC International Advisory Committee (members)

CHINA

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Prof. Xing-Fang Hu, is from Shanghai Institute of Ceramics, Chinese Academy of Sciences. He is organizer of international meetings, editor and expert in solar energy materials and solar cells, recently focused in 3D ordered macroporous materials (e.g. titania).

CHINA

Dr. Junwei (Jerry) Wu
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Professor Junwei Wu is an associate professor and serves as a vice secretary general in SAVTI, who is a recognized expert in tribological coatings (PVD/PACVD/DLC).

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Dr. Jouko the CTO and co-founder of Comptek Solutions. He is the inventor of Kontrox technology, he holds a PhD in physics and is a passionate compound semiconductor materials professional with almost a decade of research behind. He has authored or co-authored almost 30 publications and holds 10+ patents.

SVC International Advisory Committee (members)

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Prof. Dr. Aryasomayajulu Subrahmanyam, has been working as Chair professor at the Department of Physics, Indian Institute of Technology Madras. He is an expert in metal oxide thin films and devices, magnetron cathode design, semiconductor materials and devices, recently in bio-medical applications like photocatalysis for oxygenation of blood.

MEXICO

Prof. Joaquín Esteban Oseguera Peña
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Prof. Oseguera is President of the National Network for Surface Engineering and Tribology, from CONACyT. His expertise is in plasma surface processing by PVD, HiPIMS and Plasma Nitriding for tribo-mechanical systems, hard surfaces and functionalizing components. He developed plasma assisted processes and industrial systems to nitride steels and produce micro- or nano-structured thin films. In his research he supervised many PhD students and developed two companies. He is currently a Member of the National Research System, rank 2.

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Prof. Dr. Witold Gulbinski, DSc. is a Vice Director for Science and Development, and chair professor of Division of Physics at Institute of Technology and Education in Koszalin University of Technology. Expert in vacuum plasma, nanotechnology, tribological films, recently focused to applications of stainless steels for medical instrumentation and food industry.

SVC International Advisory Committee (members)

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Prof. Ju-Liang He, is the chair professor at the Department of Materials Science and Engineering at Feng Chia University, Taiwan. He is recognized expert in vapor coating technology, surface engineering/characterization, plasma engineering, photovoltaic and electrochromic materials and thin film batteries.

SVC Young Members Committee

The SVC Young Members Group is open to young people (age 35 and younger) with an interest in vacuum coating and related technologies. Members of the group may be students or young staff in industry; the common feature is that they should meet the age requirement and have a keen interest in any topics which sit under the umbrella of the SVC.

Our Mission: *We are dedicated to nurturing the growth and development of young professionals in the field of vacuum coating. We strive to create a platform that encourages innovation, fosters learning, and promotes collaboration.*

Our Vision: *To create a future where our members are key contributors to the advancements in vacuum coating. We aim to inspire a sense of curiosity and passion for the field, fostering a community that values diversity, innovation, and excellence. Through our efforts, we hope to cultivate leaders who will shape the future of vacuum coating, bridging the gap between industry and academia.*

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Gregory Taylor, Co-Chair
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SVC Publications Committee

The main mission of the Publications Committee is to assure appropriate advancement of the SVC publication activities while keeping in mind advances in the field of coatings and surface engineering, the interests and needs of the contributors and readers, as well as the technical, financial and manpower resources.

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SVC Strategic Technologies and Markets (ST&M) Committee

"Strategic Technologies and Committee" Charter and Background:

1. The Committee coordinates all strategic aspects of the SVC's Technical Program, in particular:
    1. Identification of technologies, applications, and markets – both mature and emerging - relevant to SVC stakeholders,
    2. Periodic review and adjustment of those technologies, applications, and markets to maintain relevance to SVC stakeholders recognizing that the SVC stakeholder base and interests are constantly evolving , and
    3. Developing the means that ensure adequate and effective representation of those technologies, applications, and markets in:
        1. the SVC's Technical Advisory Committee (TAC) structure and
        2. the Technical Program of the TechCon and other SVC activities.
2. The Committee focuses on strategy and develops plans and proposals for tactical / operational implementation. It is envisioned that the ST&M Committee may engage members of existing TAC leadership/membership to not only develop any plans but to identify potential leadership in new areas of focus. The SVC BOD shall review and advise on such plans and proposals, as needed.
3. Tactical and operational aspects of maintaining TAC and TechCon program operations are the purview of the Program Director. Program Director reviews and approves plans and proposals of the Committee that are intended for tactical / operational implementation.

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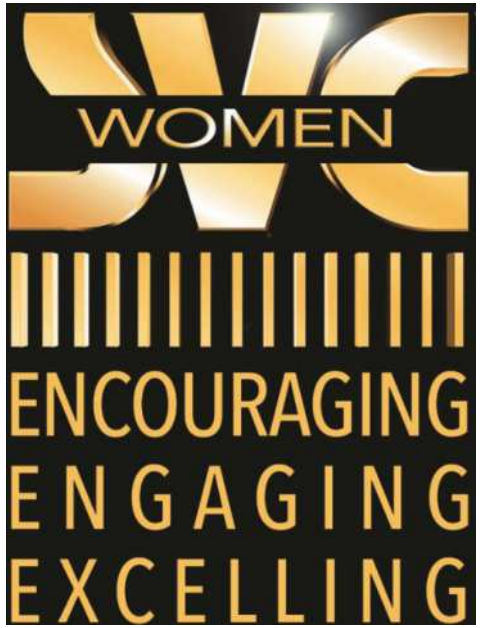
Women in the SVC Committee

Vision *- To provide a platform for women in the society to support each other and excel in the industry.*

The mission of the Women in SVC Committee is to promote the work, innovation and achievements of women in the SVC Community. We will raise awareness of women in the industry, highlighting women speakers and chairs throughout the conference and encourage, engage and provide mentorship to the female students of the SVC Foundation and the women of the SVC Young Members Group.

Objectives of the Committee:

- Have a designated time at every TechCon where all members of the group can meet, have discussions, provide support and network with each other.
- Raise awareness of the work and achievements of the women of the group.
- Encourage companies within the industry to encourage female staff to attend TechCon, submit papers and participate in the exhibit.
- Provide built in resources for women in the society through the SVC website.
- Offer a scholarship or bursary, directly linked to the Women in SVC Committee, to female students to allow them to attend TechCon and get an insight to the industry.



Women in the SVC Committee

43 Members in total!

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Atomic Layer Processing (ALP): Technical Advisory Committee (TAC)

Over the last few years, atomic layer processes (ALPs), such as atomic layer deposition (ALD), atomic layer etching (ALE), molecular layer deposition (MLD), and atomic layer epitaxy (ALEp) have increased in importance, enabling many new products and applications. With excellent uniformity, nanoscale precision, and high versatility, ALPs have applications in sensing, optical coatings, energy storage, and microelectronics. Recent advances in low temperature processing make ALP methods attractive to the processing polymers, biomaterials, and other applications with low thermal budgets.

We are soliciting oral and poster contributions to ALP sessions in areas including both established ALD technologies and creative new ALP developments. Advanced ALP technologies which successfully cross over from early-stage feasibility studying into commercially viable industrial solutions are of particular interest.

Session Topics will include:

- Innovations in methods for upscaling ALPs towards high-volume industrial applications
- New business concepts or market perspectives that accelerate transfer of ALPs from the lab to commercial viability.
- Current commercial products using ALPs
- Precursor synthesis
- Fundamental aspects of ALP
- Process development
- Plasma enhanced processes
- Challenges and applications of ALPs
- Novel concepts for ALP process control, characterization, and monitoring

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Coatings and Processes for Biomedical Applications: Technical Advisory Committee (TAC)

Coatings and surface treatments are used in many existing and emerging biomedically relevant areas. Recent advances in knowledge related to biological systems have motivated the development and characterization of coatings and surface treatments with the purpose of improving osseointegration, interfacing with the nervous system, extending implanted device lifetimes, improving biocompatibility, and lowering costs to highlight a few. The applications also extend beyond implantable devices. For example, energy harvesting for health monitoring wearable devices requires biocompatibility and flexibility. Applications for coatings in healthcare are already broad and continue to expand.

To disseminate advances and address technical issues in this broad and growing area, The Coatings and Processes for Biomedical Applications Technical Advisory Committee (TAC) welcomes papers reporting on biomedical coatings and surface modifications, characterization of these materials and their performance, as well as advances leading to new applications in the biomedical area.

The following list is intended as a guide to topics appropriate for this session but other biomedically relevant papers are also encouraged:

- Orthopedic and osseointegration applications
- Cardiac rhythm management
- Neurostimulation
- Cardiovascular intervention
- Bio-corrosion
- Flexible electronics
- Biosensors, bioelectronics, and biochips
- Antimicrobial applications

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Coatings for Energy Conversion and Related Processes: Technical Advisory Committee (TAC)

This session provides a comprehensive forum for experts and researchers to discuss the latest developments and technologies in the field of energy conversion coatings. These talks cover a wide area of applications, however with a core focus on energy conversion, storage, and management. This session brings industry, research, and academics together in order to facilitate the transfer of technology and share new and upcoming ideas and technologies for the improvement of sustainable livingThe Coatings for Energy Conversion and Related Processes Technical Advisory Committee (TAC) welcomes papers in the following areas:

Solar and Ambient Light Energy Conversion:

- Thin-film and thin wafer photovoltaics as well as perovskite silicon tandem photovoltaics for space and terrestrial applications
- Organic flexible photovoltaics (OPV)
- Semi-transparent photovoltaics
- Coatings for improved performance

Energy Harvesting:

- RF Harvesting
- Piezoelectrics
- Kinetic harvesting through body movement

Efficient Functional Coatings:

- Radiative cooling
- Hydrophobic and hydrophilic
- Self-cleaning catalytic coatings
- Coatings for reduction of precious metal
- Anticorrosive coatings

Other traditional subjects of the Coatings for Energy Conversion and Related Processes TAC will be considered including:

- Smart windows
- Selective radiators
- Fuel cells
- Large-scale energy conversion and storage

Energy Storage:

- Thin flexible batteries
- Flow batteries
- Powder surface treatment (PVD, CVD, ALD) for Li-ion batteries or Na-batteries, or solid-state batteries (or other types)
- Super Capacitors
- Coatings for improved stability, Graphene and carbon nanotubes Thin flexible batteries
- Protective coatings for the prevention of e. g. hydrogen embrittlement

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Digital Transformation through Artificial Intelligence, Machine Learning, Simulation, and Data Science in the Thin Film Industry: Technical Advisory Committee (TAC)

This session covers all topics in which novel digital technologies play an important role. These include, without limitation, physics and chemistry simulations, advanced data science techniques, and approaches that rely on subsets of artificial intelligence, such as machine learning. It brings together experts in simulation and artificial intelligence and provides an ideal platform to discuss the benefits of the digital transformation of industrial deposition processes from the perspective of various technology fields. The session welcomes perspectives from academic experts as well as stakeholders from the entire vacuum coating supply chain — OEMs, coating centers, providers of coater components and monitoring tools, and providers of digital services and simulation software.

The motivation behind this session is the fact that industrial deposition processes are under strong competitive pressure, as better productivity is always demanded with higher precision and increasing complexity of coating products. This increased complexity requires optimized coating processes, model-based process control, and a comprehensive view and understanding of the entire process chain. Therefore, a digital transformation, which will be one of the key drivers in the future for industrial deposition processes, is needed. The digital transformation includes the systematic collection of data generated in different processes and the representation of the coating processes through real-time capable digital twins.

Even today, simulation and digital twin models are well-established tools for predicting and optimizing deposition processes. It is possible to use physical and/or chemical models to predict the behavior of the process with very little a priori knowledge.

Another approach to predicting processes is the use of generated data and components of artificial intelligence, such as machine learning, deep learning, or grey-box models. In this context, data acquisition, storage, and accessibility become increasingly important. Artificial intelligence is already deployed in areas such as image recognition, predictive maintenance, and process control.

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Electron Beam Processes: Technical Advisory Committee (TAC)

The Electron Beam Technology Technical Advisory Committee (TAC) is a spin-off from the International Conference on High-Powered Electron Beam Technology, originally founded by Dr. Robert Bakish in 1983. Today, high-power electron beam technology is well established for coating, melting and welding. The EB TAC focuses on the development of new coatings and coating processes using electron beam technology, as well as new e-beam components such as power supplies and beam control systems to enhance material properties. Of particular interest are equipment improvements that enable new applications such as additive manufacturing of turbine engine components and medical implants.

The TAC supports the technical and technological exchange of knowledge to promote electron beam technology especially for industrial applications and is looking for papers on the topics listed below:

- Advances in high-rate PVD by electron beam evaporation (EB-PVD) such as for thermal barrier coatings.
- Electron beam processes for the production of novel materials
- Additive manufacturing with electron beam
- Thermal processes (welding, hardening, refining, drilling)
- Non-thermal processes (curing, sterilization, crosslinking, gas conversion)
- New applications for PVD by electron beam evaporation for photovoltaics, concentrated solar, energy production (fuel cells), energy storage (batteries) and high efficiency lighting,
- Modeling of electron beam sources, processes, and systems
- New components in electron beam technology (guns, power supplies, vacuum systems, plasma assist)
- Emerging technologies (electron generation, beam guidance, etc.)
  Related and new applications of electron beam processes

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Emerging and Translational Technologies and Applications: Technical Advisory Committee (TAC)

This session welcomes presentations related to Deposition and Surface Engineering Technologies and Applications that do not readily align with the classic Session topics of the SVC TechCon program. Modern market needs and application requirements continuously trigger innovation in the production and development of Thin Films and coatings. There are two trajectories that historically advance the field: (a) Adjacent markets and applications expand by taking advantage of innovation in traditional technologies, and on the other side (b) established markets and applications benefit from technical innovation in fields that previously were restricted to exterior “heritage” domains.

This session seeks to highlight new applications and markets that are enabled by advances in Thin Film and coating Deposition, Interface engineering, and Surface processing. Contributed presentations may emphasize applications & markets, describe the role of enabling or cross-over technologies, as well as business topics such as market opportunity overviews, or new business and engineering concepts.
Market- and business-focused talks should generally relate to technology innovation within the SVC domain, and technology-focused talks should relate to a new market or application arena that SVC stakeholders should pay attention to.

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High Power Impulse Magnetron Sputtering – HIPIMS: Technical Advisory Committee (TAC)

High Power Impulse Magnetron Sputtering (HIPIMS) has moved from lab scale to industry. Today, a significant number of industrial scale HIPIMS processes exist as well as some commercial processes and products. Both fundamental understanding and application-oriented development are essential for exploiting the full potential of this technology. The latest results from fundamental research, new and advanced approaches for simulation and modeling, and the combination of applied research from lab scale to industrial size cathodes and machines are the focus of this TAC. The session aims to provide a forum linking scientists, technologists, and industrialists to discuss all aspects of the HIPIMS technology.

Papers are solicited, but not limited to, from the following areas:

- Fundamental research on plasma, discharge, and coatings
- Simulation and modeling of HIPIMS
- New plasma sources and process modifications
- Recent development in pulse generation and process and plasma diagnostics
- Application oriented results: tribological, optical, medical, etc.
- New coatings and products

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Large Area Coatings: Technical Advisory Committee (TAC)

A key factor in driving down the cost of production is highly correlated to the throughput or scale of production. In thin film processes the substrate width or total area being processed per batch or per substrate is the key metric. Scaling up to High Volume Manufacturing (HVM) has enabled tremendous cost reduction in the production of Architectural Glass, Flat Panel Displays, Solar Cells, and Roll-to-Roll polymers. For example, architectural glass coaters are now operating with substrates that are 3m x 6m in size or larger.
Scalability comes with unique challenges. To operate a plant at HVM scales, the process must be stable over long operation time and reproducible, capable of depositing or etching materials homogeneously over large areas and at high rates. Film properties (such as stoichiometry, stress, or conductivity) must be precisely controlled to achieve performance as in a lab scale environment. This is true across all types of coatings whether they are used for optics, barriers, scratch resistance, or transparent conductors to name a few. Furthermore, complex decisions involve inversely proportional factors of Capital Expenditures (CapEx) versus Cost of Ownership (CoO). Further factors include facility constraints and requirements and product yield.
The Large Area Coating Session is the forum where scholars and industry experts present the scalability of thin film vacuum science. The talks may cover the limitations, challenges, failures, and success of moving from lab scale or pilot production up to High Volume Manufacturing. Session topics will cover:

- Scale-up and process Transfer: challenges and good practices,
- Understanding process and nanoscale: Physics and chemistry of thin films and their interfaces, analytical equipment in-/ex-situ, in-/off-line,
- Coating of 3D substrates: enabling technologies,
- Functional coatings at temperature sensitive plastic substrates or thin glass: hard coating, barrier properties, adhesion, and stress management,\Architectural, Automotive, Aerospace, and Display thin film materials, processes, equipment for heat reflecting, hydrophobic/hydrophilic, de-icing, and anti-static functions,
- New Large Area Trends and Solutions: coatings for semiconductor industry at glass, patterned or integrated structures for bird friendly glass, mobile signal transmission, sound insulation,
- "Low-carbon footprint coatings" and required technologies for inside/outside of vacuum, and
- Automation of coating processes, as well as assisting tools: physical vs statistical models, ML, AI.

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Optical Coatings: Technical Advisory Committee (TAC)

Exciting developments in optical coatings are stimulated by the latest trends in optics, optoelectronics, photonics, optical data processing, mobile devices, displays, biomedical, sensors, energy and photovoltaics, architectural, aerospace, astronomical, and other technologies. The Optical Coatings sessions will bring together these different aspects for technical interchange in the field of optical interference coatings. To build a well-rounded Optical Coatings session, abstracts are solicited to cover topics including coating design, development of practical manufacturing techniques, characterization methods, and a wide range of applications.

Specific areas may include:

- Novel optical coating materials, including metamaterials and metasurfaces.
- New fabrication processes for optical coatings.
- Novel optical interference design software and design techniques.
- Production issues common to the industry – including lessons learned or serendipitous discoveries that came from problems or disasters.
- Metrology of optical films (new instrumentation and software developments,
- inline or in-situ approaches, etc.).
- Real-time process monitoring and control with optical coating processes.
- Industrial scale-up.
- Preconditioning and cleaning issues; refurbishment approaches for optical coatings.
- Coatings on sapphire, polymers or other special substrate materials, Coatings for complex 3-D optical devices.
- Applications in non-traditional wavelengths, from EUV to IR (e.g., IR thermal imaging).
- Optical Coatings for mobile electronics (e.g., fingerprint sensors, cameras, displays, touchscreens, etc.).
- Optical coatings for wearable technology, including AR/VR.
- Coatings for LIDAR/driverless vehicles.
- Optical coatings for biomedical applications.
- Optical coatings for energy control and solar power.
- Optical coatings for laser applications, including femto-second lasers.
- Optical coatings for display and integrated photonic device applications.
- Optical coatings for astronomy and aerospace.
- Optical coatings for quantum optics.

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Organic and Perovskite Electronics: Technical Advisory Committee (TAC)

Organic and organometal-halide perovskite materials have emerged in recent years as important alternatives to traditional inorganic materials for optoelectronic devices. These novel materials provide huge potential benefits such as reduced-cost processing, compatibility with nonconforming and flexible substrates, and tunable color properties, allowing for a range of interesting applications. Organic light-emitting diodes (OLEDs) have become widespread commercially in displays, with improvements in brightness and contrast ratios, as well as interesting form factors such as thin and flexible devices. Perovskite-based photovoltaic devices are attracting considerable interest as a potentially disruptive energy technology, with power conversion efficiencies similar or in excess of those seen in current panels but with simpler processing requirements.
Like any interesting and fast-growing field of technology, the achievements, and benefits in the field of organic/organometallic electronics and optoelectronics don't come without their own challenges. The inherent properties of these materials make them challenging to deposit using a vapor-phase technology:

- The materials are typically prone to decomposition at relatively lower temperatures which has led to development and use of evaporation sources with complex set of features and temperature control mechanisms.
- Additionally, some of the active films in the device architecture require precise rate control algorithms to achieve the required host-dopant compositions, which in turn also require critical hardware considerations.
- Materials are mostly sensitive to moisture and oxygen, so the protection from these elements during and post-fabrication is critical.

These factors require a deep understanding of material properties, study and treatment of substrates and interfacial properties of layers, considerations of the bottlenecks towards device fabrication, encapsulation techniques and thin-film deposition system solutions, and combined they result in an exciting process in this field of study.

This session invites papers addressing materials and processing challenges related to these technologies involving vacuum and vapor-based techniques such as evaporation, sputtering and ALD. We encourage submissions on practical approach towards fabrication of organic devices and emphasizing on key parameters to consider during the design and building steps. Discussion on challenges and opportunities in scaling up processes for industrial production will be integral to the symposium.

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The session will include discussions on research on the following device types:

- Organic & Perovskite Light-Emitting Diodes (OLEDs & PLEDs)
- Organic & Perovskite Photovoltaics (OPV & Perovskite PV)
- Hybrid Inorganic/Perovskite Tandem Photovoltaics
- Organic Thin-Film Transistors (OTFTs & OFETs)
- Organic Memory Devices & Spintronics
- Organic Sensors
- Flexible and Wearable Electronics
- Building-Integrated Photovoltaics (BIPV)

Plasma Processing & Diagnostics: Technical Advisory Committee (TAC)

Plasma has the unique capability of providing a diverse and complex environment that has proven to be well-suited for a wide variety of industrial applications including anisotropic dry etching, surface chemical modification, magnetron sputter-deposition and plasma enhanced chemical vapor deposition (PECVD) of thin films and coatings. Nevertheless, the potential of plasma processing on an industrial scale can only be realized when basic material processing studies are accompanied by the understanding of plasma physics, plasma chemistry and the underlying mechanisms at the plasma-surface interface, developed through both modeling and experimental efforts. More recently, the plasma processing community is exploring exciting new opportunities involving atmospheric pressure discharges, micro-plasmas and pulsed discharges, plasma interactions with liquids, plasma-enhanced catalysis at surfaces and plasma processing of nanomaterials. These new developments along with the never-ending quest for improvement in long standing applications are the basis for an active plasma processing community engaged in the research of reactive plasma environments and exploration of new possibilities and applications.

Accordingly, the session chairs welcome papers of a fundamental and applied nature in the following topics:

- Plasma-enhanced physical or chemical vapor deposition and plasma-surface modification techniques.
- Novel and emerging plasma processing methods such as the processing of nanoparticles and nanomaterials, plasma catalysis and the treatment of non-traditional materials including liquids.
- Development of plasma sources and related technologies (ex. power electronics) to enable both conventional and novel plasma processing techniques including those operating at or near atmospheric pressure.
- Diagnostics (optical, electrical, particle, or systemic) applied to understand the plasma environment and plasma interactions with materials, along with techniques to improve diagnostics capabilities.
- Modeling of gas-phase phenomena in plasmas, plasma-surface interactions, and plasma processing systems.

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Processing Monitoring, Control, and Automation: Technical Advisory Committee (TAC)

The fourth industrial revolution is steering manufacturing towards full automation. Producers seek robust vacuum process monitoring, control, and automation solutions. They hold the key to any attempt to achieve the necessary level of industrial automation. The bonuses of successful automation include higher production rates, lower waste of materials & energy, lower operating costs, and increased overall efficiency.
Reliable monitoring and control solutions are far from readily available, and intense development efforts are underway in industry and academia across the globe. It is intensely hot around the topics related to the development and industrial application of:

- Embedded sensors & actuators,
- Cyber-physical monitoring and control systems,
- Holistic process control methods and systems, and
- Robotic automation.

This session/TAC brings together experts, technologists, and solution providers from the thin film/surface engineering community to discuss challenges, developments, and solutions that pave the way toward enabling the autonomous operation of vacuum coating plants. Contributions highlighting particular challenges or constraints and talks detailing cutting-edge control and automation methods and their physical and digital embodiments are particularly well suited to this session.

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Protective, Tribological, and Decorative Coatings: Technical Advisory Committee (TAC)

The Protective, Tribological and Decorative Coatings Technical Advisory Committee (TAC) encourages speakers to submit presentations dealing with design, research, development, applications, and production of coatings deposited with vacuum processes, the characterization of their properties related to wear, friction, and corrosion, and to assess their protection of the receiving components, such as cutting and forming tools, engine components, as well as decorative parts.
The use of such coatings is typically driven by performance requirements, reduction of life-cycle cost, environmental consideration, and durable cosmetic and aesthetic designs. These end-user motivations lead to dedicated coating and technology developments, vacuum coating equipment concepts, new testing procedures and methods, and production quality standards. Therefore, successful coating solutions in the marketplace require strong co-operation between market specialists, universities, suppliers, manufacturers, and end-users.

The TAC invites speakers to present on the subjects of new emerging technologies. Developing and scaling up from laboratory to high volume production at high production yields is also of high interest to the participants in this session. Today's global landscape is changing rapidly and will drive many new application developments that will include new coatings on new applications. Environmental pressure on CO_2 emissions and electroplating as well as fast moving communication technologies are well known examples of such change. Electrification of transportation and moving away from the combustion engine are daily news. Topics of interest for this session include, but are not limited to:

- **Applications:**

  - Hydrogen economy related components
  - Coatings for high-performance engines, including hydrogen and e-fuels combustion
  - PVD and CVD coatings for cutting, forming and molding tools
  - Coatings for the reduction of friction and exhaust gas emissions
  - Low- and High-temperature coatings for aerospace applications
  - Decorative components and large area pre-fab sheets
  - Corrosion protective coatings (e.g. Zn:Al) on large-area surfaces
  - Electroplating Replacements by vacuum deposited coating

- **Development:**

  - Super-lubricity Coatings
  - Corrosion protection
  - New colors
  - Hydrogen embrittlement barriers
  - Testing and evaluation of coating performance
  - Scale-up of vacuum coating processes for industrial demands
  - Failure analysis of coatings
  - Assessment, control and management of residual mechanical stress
  - Duplex coatings and thin-on-thick systems
  - Modelling approaches to performance analysis and prediction

- **Production Related:**

  - Reliability and life of coated parts and systems
  - Upscaling from laboratory to production
  - Scrap rates from percentages to ppm levels
  - Integration of Industry 4.0 in vacuum coating plants

TAC Co-Chairs:
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Quantum Computing: Technical Advisory Committee (TAC)

Quantum computing promises to harness the power of quantum mechanics to solve problems unfathomable for classical computers to resolve. Quantum computing, once a theoretical dream, is now experiencing an unprecedented surge of progress. Driven by intense research efforts, substantial investments, and collaboration across academia and industry, quantum computing technology is rapidly approaching reality with a promise to revolutionize fields ranging from materials science and drug discovery to finance and artificial intelligence. The SVC symposium aims to explore the current state and prospects of this transformative technology.

The symposium invites researchers, academics, and industry leaders to explore the cutting edge of quantum computing and share their insights on its remarkable emergence. We seek submissions on a range of topics, including:

Quantum Hardware and Software:
- Progress and challenges in superconducting qubits, trapped ion, topological, and other platforms.
- Novel device architectures and fabrication techniques.
- Algorithmic breakthroughs development frameworks and their practical applications.
- Error correction and fault-tolerance techniques.
- Benchmarking and performance analysis.

Scalability Challenge:
- Bridging the gap between quantum and classical systems.
- Architectures for large-scale quantum computing.

Applications:
- Emerging applications in materials science, drug discovery, and encryption.
- Quantum-enhanced machine learning and artificial intelligence.
- Financial modeling and risk analysis.

Impact:
- The ethical implications and impact of quantum computing on society.
- Educational initiatives and talent development for the quantum workforce.
- Commercialization and industry trends in quantum technology

TAC Co-Chairs:
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Selective Atomic Scale Processes: Technical Advisory Committee (TAC)

Selective processes with atomic and molecular resolution have been attracting considerable attention during the last few years due to their capability to reach sub-10 nm resolution in semiconductor fabrication and a great potential for 3D-patterning.

After the breakthrough of atomic layer deposition (ALD) of dielectrics about a decade ago and revival of interest towards atomic layer etching (ALE), the research efforts to a large extend shifted to area-selective (AS) ALD and material- topographically-selective ALE. The combination of atomically selective ALD and ALE processes not only provide high flexibility in 2D patterning in high-resolution semiconductor technology, but also allow formation of structures in 3D. Both AS-ALD and selective ALE are based on self-limiting process steps that allow extreme control of deposition or etching in a layer-by-layer fashion.

Sequential Infiltration Synthesis (SIS), alternatively called also Vapor Phase Infiltration (VPI) complements the above-mentioned layer-by-layer technologies by its ability to form 3D nanostructures by a bulk diffusion and selective chemical reactions of precursor with functional groups in polymers or block co-polymers (BCP). Highly selective reactions of precursors with e.g. carbonyl groups (C=O) in the polymer bulk allows integration of inorganic materials into the organic matrix, resulting in a hybrid material. A self-organized BCP film after the SIS will form 3D nanostructures.

The common feature of all those methods is the use of self-limiting reactions that can provide atomic-scale resolution in both vertical and horizontal directions: this property can also be complemented by selectivity in etching or deposition. Selectivity in deposition or etching may solve some of the processing challenges in the technology of nano-devices, e.g. alignment of nanometer-sized features. The high degree of control makes the selective atomic scale processes very attractive for future nano-fabrication methods.

We are soliciting both poster and oral contributions to the Selective Atomic Processes session to include the following topics:

- Fundamental mechanisms of selective atomic processes in 2D (layer-by-layer) and 3D (bulk)
- Applications of selective atomic processes
- Selective atomic processes in micro- and nanoelectronics
- Characterization of selective atomic processes
- Industrial applications and scale-ups
- Other relevant topics

Session Chair:
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Thin Film Contributions for the Hydrogen Economy: Session

This session is focused on the role of Physical Vapor Deposition (PVD) and related thin film & surface engineering technologies in the emerging hydrogen economy. This session aims to bring together experts, researchers, and industry professionals from around the world to share their knowledge and insights on the application of PVD thin film coating techniques in advancing the use of hydrogen as a clean energy source.

Participants will have the opportunity to present their research findings, case studies, and innovative approaches in utilizing PVD thin film coating technology for various aspects of the hydrogen economy. The topics of interest include but are not limited to: PVD coatings for hydrogen storage materials, PVD methods for fuel cell catalyst preparation, thin film coating-based hydrogen production and purification techniques, and advancements in thin film coating processes for the manufacturing of hydrogen-related devices and components. Specific industrial implementation of solutions is of critical importance to the SVC's international stakeholder base.

The SVC TechCon provides a unique platform for scientists, engineers, and industry leaders to collaborate, exchange ideas, and explore the potential of thin film coating technology in shaping the future of the hydrogen economy. We encourage interested individuals and organizations to submit their abstracts showcasing their contributions to this rapidly evolving field. Together, let us uncover the transformative capabilities of thin film coating technology and pave the way for a sustainable and efficient hydrogen-powered future.

Session Co-Chairs:
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Thin Film Sensors: Technical Advisory Committee (TAC)

The evolution of sensors in today's world has been driven by numerous technological advances and an explosion of new demand/applications. It is evident that as we continue to grow as a society, there are limitless ways to advance our capabilities as it pertains to health, labor, safety, transportation and economic prosperity. Sensors are becoming extremely common in our everyday lives and can be found in such items as clothing, machinery, photovoltaics, analysis of light, pressure, gas, temperature, speed, and a wide variety of health monitoring equipment. Sensor technology is frequently based on thin film technologies; principally physical vapor deposition (e.g., magnetron sputtering and thermal evaporation), and even when they incorporate additive manufacturing (such as printing and device attach) or micro-electromechanical systems (MEMS), the interfaces and multi-layer material sets of the resulting sensor structures require expert knowledge of surface and thin films engineering. The competencies found in the thin film and surface engineering community can provide solutions to advance the overall capability and efficiency of these devices. This advancement will not only accelerate the adoption of existing applications, but also enables new sensor applications and modalities.

Topics of interest to this session will include:

- Advanced photonic sensing materials design and fabrications,
- Nano plasmonic materials for environmental sensing applications,
- Sensing modalities enabled by microfluidics and selective surface functionalities, and
- Flexible sensing materials and devices for wearable health monitoring applications.

This session /TAC seeks to connect thin film and surface engineering technologies to the myriad applications driven by the connectivity opportunities of the Internet of Things (IoT). Contributions that focus on novel solutions, techniques, and manufacturing challenges are of particular interest.

TAC Chairs:
Jason Hrebik, *Kurt J. Lesker Company,* jasonh@lesker.com
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Two Dimensional (2D) Materials and Heterostructures – Applications, Large-Scale Growth, & Advanced Characterization: Technical Advisory Committee (TAC)

Two-dimensional (2D) materials with thicknesses of only several molecular layers realize the ultra-thin limit of crystalline materials. This material class demonstrates unique combinations of electronic, optical, mechanical, and thermal properties owing to their anisotropic structure. Applications leveraging these functionalities include transistor and memory technologies, wearable electronics, photovoltaics, and sensors. Significant efforts focused on controlled, large-area synthesis of 2D materials and integration into diverse device constructs are the focus of multidisciplinary teams worldwide. In addition to new applications, development of new approaches to understand the properties of 2D materials at the ultra-thin limit and when integrated with other materials is the topic of vital and ongoing research.

The objective of this session is to discuss advances in synthesis and fabrication of 2D materials and devices to address impactful applications, with a special emphasis on large-scale integration.

Processes of particular interest include controlled low-temperature synthesis of 2D materials, chemical vapor deposition, sputtering, and atomic layer deposition. Talks on new device designs integrating crystalline and polycrystalline 2D materials and their heterostructures for electronic and photonic device applications are welcome. Advanced characterization methods, especially *in situ* and/or high-throughput methods focused on the structure-property correlation in 2D materials are also topics for this session.

Topics will include:

- Large-scale synthesis of 2D materials and their heterostructures
- Low-temperature synthesis
- New 2D device concepts
- Scalable device fabrication and heterogeneous 2D materials integration
- *In situ* and high-throughput characterization techniques
- 2D device reliability and failure mechanisms
- Industry-related 2D materials activities

TAC Co-Chairs:
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Exhibitor Innovator Showcase: Session

This unique session allows our exhibitors and other vendors to introduce their company's newest products and services to the SVC community. This is an ideal way to share your company's message, new products and encourage booth traffic at the TechCon.

Session Organizers:
Jason Hrebik, *Kurt J. Lesker Company,* jasonh@lesker.com
Frank Zimone, *Society of Vacuum Coaters,* frank.zimone@svc.org

WebTech Roll-to-Roll Technologies and Innovation: Technical Advisory Committee (TAC)

WebTech is the forum for flexible web and roll-to-roll (R2R) processing at the SVC. It is the podium to present new achievements in processing of flexible substrates such as polymer, textile or glass. The session scope encompasses materials, manufacturing techniques, products, applications, market developments and economical aspects of this versatile high-volume manufacturing method. The WebTech TechCon session typically features presentations on materials, deposition processes, manufacturing techniques, use cases / application examples, market analysis and economical perspectives in all areas related to R2R processing. Some pertinent topic focus areas are:

- Novel substrate materials and technologies (polymer, flexible glass, fabrics & non-wovens etc. Novel deposition sources and deposition modalities
- Inline process diagnostics & control (particularly for non-transparent coatings)
- Modeling and simulation of R2R processes
- Examples and approaches to utilize Artificial Intelligence (AI), machine learning, and other “Industry 4.0” modalities in R2R
- Aspects of progressing R2R coatings from concept demonstration to commercial scale
- Coatings under harsh conditions
- Interfacing with non-vacuum / atmospheric pre- and post-processing, including cleaning
- Low-cost / high-performance barrier coatings
- R2R processing for electronics, semiconductor and energy conversion applications

TAC Chair:
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