



2018 Applied Superconductivity Conference

October 28 – November 2, 2018
Washington State Convention Center

Call for Abstracts & Papers

ASC: Enabling Breakthroughs for the World

Abstract Submission Deadline: Wednesday, March 21, 2018 (Midnight, EDT, USA)
****This deadline is firm!****

The Applied Superconductivity Conference®, **ASC 2018**, will be held from Sunday, October 28 through Friday, November 2, 2018 at the Washington State Convention Center located in Seattle, Washington, USA. ASC, the premier conference on applied superconductivity, will present a comprehensive program including plenary speakers, invited talks, oral and poster contributions, and exhibits that will highlight the latest developments in this field.

Abstracts in all areas of applied superconductivity are solicited for presentation of technical content at ASC 2018, however, abstracts addressing the main Conference topic, *ASC: Enabling Breakthroughs for the World*, within one of the following subject areas: quantum information; renewables and energy-efficient industry, transportation, power transmission; exploration of the universe, through satellites or accelerators have particular relevance to this Conference. Submitted abstracts will be reviewed for content, and the majority of the technical program will be formed from the abstracts accepted for presentation.

ABSTRACT SUBMISSION

Abstracts will only be accepted electronically and must be submitted via the abstract submission website. The portal to the abstract submission website will be prominently displayed on the Conference website www.ascinc.org. **The deadline for submission is Wednesday, March 21, 2018 (Midnight, Eastern Daylight Time, GMT-4).** This deadline will be **STRICTLY** enforced and the submission site will not accept abstracts after this deadline. Abstracts that are not submitted to the Conference submission site by the deadline will only be considered at the discretion of the Program Chairs.

Submitting an abstract via the website is easy and convenient. Step-by-step instructions will guide you through the process. Formatting will be performed by the abstract management system, so authors should prepare information in plain text. Topic selection and other information discussed in this document will be integrated with the submission process as well. Accuracy of electronic information, in particular e-mail addresses, is very important for submitting and presenting authors. The control number assigned to an abstract once it is submitted is the primary means of identifying an abstract until the program is formed. Please use the control number in any correspondence concerning abstracts until a program number has been issued.

Submissions must address at least one of the areas below. Please review the complete list of technical submission categories on page 4.

1. Advances in the science of superconductors relevant to applications. Abstracts describing basic materials, films, or artificial structures should discuss properties interesting for applications, forms used in applications such as elementary conductors or simple circuits, or structural or compositional aspects that potentially lead to use in a device. Theoretical content should address topics relevant to applications, operations, or behavior of practical systems. Experimental studies, test methods, and data should relate to aspects of superconductivity important for applications in some way.
2. Advances in superconducting technology. Abstracts may describe concepts, design, modelling, manufacturing or fabrication, and operation or implementation of superconducting devices or components. Extensions of conventional technologies by the use of superconductivity should emphasize the role of superconductivity in the device or component. Abstracts may describe non-superconducting technologies that are required for the use of superconductors, such as insulation, provided that the primary discussion is focused on applied superconductivity.



3. Integration of superconducting devices and components in systems. Abstracts may discuss sub-systems or full systems comprised of components such as cables, magnets, detectors, circuits, and so on. Discussions may include components and processes that support superconducting devices, such as cryogenic systems supporting superconducting magnets. Studies of power devices, transportation systems, electricity transmission, energy storage, and other systems that use superconducting components should emphasize the role of superconductivity or the particular aspects of superconductivity important to the system or application. Cryogenics, non-superconducting materials at cryogenic temperature, power supplies, power electronics, and other ancillary topics may be considered provided the connection to applied superconductivity is clear. Also, abstracts may describe facilities to verify operation of components, report system tests, or describe the status of superconducting systems and projects using superconducting components.

STUDENT PAPER CONTEST

The Organizing Committee is arranging a contest for best student papers. The first, second, and the third prizes in each of the three categories will include a \$750, \$500, and \$250 cash award respectively sponsored by the *IEEE Council on Superconductivity (IEEE CSC)*, and an inscribed certificate. In addition, special \$500 memorial awards were established: Alexander Shikov award for the best paper in the “LTS and HTS Conductors” category, sponsored by *JSEC “TVEL” and A. A. Bochvar High – Technology Research Institute of Inorganic Materials (JSC VNIINM)*, and two Victor Keilin awards for innovations in magnet science and technology, and for development of superconducting materials for large-scale applications, sponsored by *Friends of Victor Keilin*.

Interested students will be asked to submit a 2-page extended abstract, along with a letter from their advisor confirming that the work was done primarily by the student, on or before **Wednesday, March 21, 2018**. Submitted extended abstracts will be reviewed by the Contest Committee who will select finalists. Finalists will then be asked to present in a Student Paper Contest Oral Session. Detailed instructions will be made available on the Conference [website](#).

PRESENTATIONS AND PUBLICATIONS

Abstracts accepted for the Conference will be presented in either oral or poster sessions. All presentations must be in English. Any presenting author must be a registered participant. Multiple submissions by an author are acceptable; however, authors should be aware that the registration fee covers *only one manuscript submission per registered participant*. Any additional manuscripts will incur a fee. The accepted manuscripts are scheduled to be published in the August 2019 issue of the *IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY*, and as such will be subject to the usual peer review procedures of the *Transactions*. Instructions for manuscript preparation will also be made available on the Conference website.

FINANCIAL SUPPORT

The ASC 2018 Organizers are proud to partner with the *IEEE Council on Superconductivity (IEEE-CSC)* to provide financial assistance to participants attending ASC 2018. Thanks to a generous grant from IEEE-CSC, student and non-student participants may apply for financial assistance that will waive the registration fee and/or provide for a travel stipend in exceptional cases. Note that an accepted abstract is required as it is expected the participant will be giving a poster or oral presentation. Applications must be submitted by **Monday, July 9, 2018** via the ASC 2018 website. This deadline is firm as awards will be announced no later than Tuesday, July 31, 2018. The travel stipend portion of the award will be distributed to students at the Conference by IEEE-CSC. Further details on the method of reimbursement will be communicated to the award recipients. Awardees will have to accept or decline no later than Monday, August 13, 2018. For more information on how to apply, please see the [financial support page](#) on the Conference website.

ASC BOARD NOMINATIONS

The ASC is run by a board of directors, the majority of whom are elected by participants at the conference. Each conference, two representatives from each of the areas of Electronics, Materials and Large Scale, are elected for a six-year term. Suggestions or volunteers for candidates to run for the Board are solicited. Nominations must be submitted by **Wednesday, March 21, 2018**. Please visit the Conference [website](#) for further information.

EXHIBITS

A technical Exhibition of materials, services, instruments and literature will take place during the Conference. If you or your company are interested in exhibiting, advertising or would like to receive additional information about the ASC 2018 Exhibition, you may visit the Conference [website](#) or contact Centennial Conferences: Phone: (001) 303-499-2299, Fax: (001) 303-499-2599, Email: asc@centennialconferences.com. Exhibit contracts must be submitted by **Monday, July 16, 2018**.



TECHNICAL SUBMISSION CATEGORIES

ELECTRONICS SUBMISSION CATEGORIES

Superconducting Electronics

- 11 Device fabrication: junctions, nanowires, epitaxial films, low-loss dielectrics
- 12 Packaging and systems integration
- 13 Digital circuits: conventional and energy efficient designs
- 14 Mixed signal circuits (analog + digital)
- 15 Microwave devices and components: low-noise amplifiers, mixers, filters
- 16 SQUID design and applications: nanoSQUIDs, scanning, SQIF, biology, geology, NDE
- 17 Quantum information processing: qubits, QKD, readout, materials, fabrication
- 18 Novel electronics: mesoscopes, topological circuits, metrology, metamaterials

Superconducting Detectors

- 21 Transition-edge sensors (TES) devices
- 22 Nanowire single-photon detectors
- 23 Other equilibrium (thermal) detectors: SNS, penetration-depth
- 24 Other non-equilibrium (non-thermal) detectors: SIS/HEB mixers, STJ/MKID photon
- 25 Instrumentation and readout of superconducting detectors

LARGE SCALE SUBMISSION CATEGORIES

Large Superconducting and Related Systems

- 31 Large detector arrays
- 35 Superconducting RF
- 36 Levitation, transportation, and propulsion
- 37 Magnetic separation and other applications
- 38 Cryogenics for superconducting devices and system integration

Superconducting Magnets

- 40 Accelerator magnets: dipoles, quadrupoles, correctors
- 41 Accelerator magnets: wigglers, undulators, special magnets
- 42 Fusion magnets
- 43 Very high field and NMR magnets
- 44 Magnets for medical systems
- 45 Detector Magnets
- 46 HTS magnets
- 47 Magnet stability, magnetization effects, AC losses and protection
- 48 Cables (HTS, LTS), CICC, and current leads
- 49 Magnet design and analysis techniques

Superconducting Electric Power

- 50 Grid study with superconducting devices
- 52 Motors, Generators, and other rotating machines
- 54 Transmission and distribution cables and links
- 55 Transformers
- 56 Fault current limiters
- 57 Energy storage
- 59 AC loss in superconducting electrical power devices

Measurement and Testing

- 90 Measurement and experimental techniques
- 95 Test facilities and instrumentation

MATERIALS SUBMISSION CATEGORIES

Conductor R&D

- 60 NbTi, Nb₃Sn, and other niobium-based wires and tapes
- 62 MgB₂ wires and tapes
- 64 Bi-oxide wires and tapes
- 66 Coated conductors
- 68 Bulk conductors
- 69 Other wires and tapes

Materials Important for Applications - Structure, Formation, Basic Properties

- 70 General superconductor materials science
- 71 Metals and simple compounds
- 72 Cuprates and related materials (buffers, templates, etc.)
- 73 Pnictides and related materials
- 74 New and emerging materials including Fe-chalcogenides
- 75 Artificial structures, thin films, and multilayers
- 77 Insulation and dielectrics
- 78 Ancillary materials for superconducting applications

Properties Important for Applications

- 80 Critical current and flux pinning
- 82 Magnetization and time-dependent losses
- 84 Mechanical properties, strain dependence
- 86 Critical temperature and critical fields
- 88 Other properties