ISPSD Conference Guidelines

[1] Introduction

The International Symposium on Power Semiconductor Devices and ICs (ISPSD) has become the premier international conference for presentation and discussion of all aspects of power semiconductor device and power integrated circuit technologies.   The conference has been loosely governed by an Advisor Committee (AdCom) and benefitted from great cooperation among the committees responsible for organizing each year's event.   However, there have been no written guidelines to ensure continuity and mutual understanding and application of the key tenets of the conference.   The purpose of this document is to define and document those tenets.   The ISPSD Conference Guidelines are published on the official web page of the ISPSD Conference.

[2] Revision History

Revision	Authors	Date	Comments
0	A. Shibib	June 2012	Collected input from the advisory committee and presented in PPT format at the 2012 AdCom meeting
1	M. Mori and K. Hamada	Jan. 2013	Generated separate regulation documents for Operation, AdCom, and TPC
2	D. Disney	Mar. 2013	Combined contents of Rev. 0 and 1
2.1	D. Disney	Mar.23, 2013	Revised version of Rev. 2
3	M. Mori	Apr. 16, 2013	Comment on Rev. 2.1
3.1	D. Disney	Apr. 21, 2013	Comments moved into the main document
3.2	M. Mori	Apr. 22, 2013	Revised version of Rev. 3.1
3.3	M. Mori	Apr. 23, 2013	Revised version of Rev. 3.2
3.4	K. Hamada	Apr.24, 2013	Revised version of Rev. 3.3
3.5	D. Disney	Apr. 24, 2013	Accepted all changes into the main document

Revision	Authors	Date	Comments
3.6	M. Mori	May 19, 2013	Revised version of Rev. 3.5
3.7	M. Mori, K. Hamada, D. Disney	May 26, 2013	Clarified role of secretary and observer at AdCom meetings
4.0	AdCom Members in ISPSD 2013	May 29, 2013	Revision 4.0 authorized at AdCom Meeting in ISPSD 2013
4.1	M. Mori	May 6, 2017	Addition to Appendix I and II
4.2	I. Omura, M. Mori	May 24, 2017	Revised Appendix I
4.3	D. Disney, J. Sonsky, M. Mori	May 30, 2017	Move all comments into the main document
4.4	A. Shibib, H. Ohashi, D. Disney, G. Majumdar, J. Shin, P. Lorenz (sub-committee for Paper Acceptance Criteria)	May 31, 2017 (at AdCom Meeting)	Revised Appendix II
4.5	J. Shen	June 1, 2017	Addition of the ISPSD Hall of Fame
4.6	M. Mori	Sep. 30, 2017	Proposal document
4.7	D. Disney	Oct. 13, 2017	Revised version of Rev. 4.6
4.8	J. Sonsky, J. Shen, M. Mori	Oct. 24, 2017	Revised version of Rev. 4.7
5.0	AdCom Members in ISPSD 2017	Oct. 26, 2017	Revision 5.0 authorized by AdCom Members in ISPSD 2017
5.1	R. Williams, M. Mori	Sep. 22, 2020	Revised version of Rev. 5.0

Revision	Authors	Date	Comments
6.0	AdCom Members in ISPSD 2020	Mar. 19, 2021	Revision 5.1 authorized by AdCom Members in ISPSD 2020

[3] Mission

The ISPSD is a volunteer organization comprising high level members with a similar mindset of devoting themselves to the progress of technology in their field. The mission of ISPSD is to cultivate an international forum for professionals in the field of power semiconductor devices and smart power integrated circuits and related fields to meet regularly, to exchange ideas and developments in the field, and to promote the growth of the field.

[4] Sponsorship

Sponsorship of the ISPSD has traditionally been provided by the IEEE Electron Devices Society (EDS) and co-sponsorship has been provided by the IEEE Power Electronics Society (PELS) and IEE Japan (IEEJ) when the conference is held in North America. When the conference is held in Japan, sponsorship of the ISPSD has traditionally been provided by the IEEJ, and co-sponsorship has been provided by the EDS and PELS. When the conference is held in Europe, sponsorship of the ISPSD has traditionally been provided by the EDS and PELS, and co-sponsorship has been provided by the European Center for Power Electronics (ECPE) and the IEEJ. Sponsorship and co-sponsorship for each ISPSD are to be determined by the Organizing Committee for that year's conference.

[5] Registration fees

The registration fees for each ISPSD are to be determined by the Organizing Committee for that year's conference. The Organizing Committee should prepare budget documents in accordance with the sponsoring society for their conference. The IEEE and IEE of Japan members should receive reduced rates to promote society membership. Advance registration fees should be lower than on-site registration fees to promote early registration. Registration fees for student members should be about one half of the standard registration fee to encourage the attendance and participation of students. Students should be allowed to participate in all activities of the conference including panel discussions, receptions, and banquets.

[6] Publications and Copyrights

All papers accepted for presentation at the ISPSD should be published in a Conference Proceedings. This includes all invited, oral, and poster presentations. The copyright of the Proceedings will be assigned to the IEEJ when the conference is held in Japan and to the IEEE

when the conference is held in any location outside of Japan.   The IEEE should receive the ISBN Catalog Number for all of the Proceedings so that they may be distributed to all libraries and other entities affiliated with the IEEE.

[7] Advisory Committee

Purpose

The purpose of the ISPSD Advisory Committee (AdCom) is to foster communication among the organizing committees and regions, to oversee the long-term development of the conference, and to ensure consistent application of the key tenets of the conference. This AdCom is the top decision-making organization of the ISPSD.   It is responsible for documenting and enforcing the ISPSD Conference Guidelines and for approving conference locations, General Chairs, Steering Committee Chairs, and Technical Program Committee (TPC) Chairs.

Membership

AdCom members are the General Chairs of prior year ISPSDs.   The AdCom member list and attendance record is maintained by the AdCom Chair and approved each year by the voting members at the AdCom meeting.   Each General Chair is invited to become an observer of the AdCom two years in advance of the ISPSD that they organize.   An observer will have a voice but no vote at AdCom meetings.   After the closing of the conference that the General Chair organizes, the General Chair changes from an AdCom observer to an AdCom member.   The Steering Committee Chair (if applicable) and the TPC Chair of the current and next year's ISPSD are invited to attend the AdCom meeting held during the conference that they organize, as secretaries.   Secretaries will record the meeting minutes and have no voice and no vote.

Each year, the AdCom Chair should contact each AdCom member and confirm their intention to continue serving.   If an AdCom member does not attend an AdCom meeting for four consecutive years, the AdCom Chair should ask that member to resign from the AdCom.

AdCom Chair

The General Chair of each conference is invited to serve as the AdCom Chair for the period between the conference that they organize and the following year's conference.   If this person cannot or will not serve, then the AdCom will elect an AdCom Chair from the list of AdCom members.

Meetings

The AdCom will meet once per year, during the ISPSD conference. The AdCom Chair has the responsibility of arranging and hosting the AdCom meeting, setting the agenda, and writing and distributing the meeting minutes. Any AdCom member may place items on the AdCom meeting agenda by submitting those items to the AdCom Chair in advance of the meeting. Decisions of the AdCom will be determined by a vote of the members in attendance, and a 2/3 vote of the attending members will be required in order for a measure to be approved. Approved measures will be documented in the AdCom meeting minutes and, if appropriate, in the ISPSD Conference Guidelines. The AdCom Chair has the responsibility of handing over the ISPSD Conference Guidelines to the next AdCom Chair.

[8] Conference Operations

Frequency and Location

The ISPSD is held once per year, typically in May or June. The conference location has traditionally rotated each year among Japan, North America and Europe, in a three-year cycle. In 2012, the AdCom decided to invite another region or country ("open-site") to host the ISPSD every fourth year, between the North America and Europe conference years. Future ISPSD conference locations and General Chairs should be proposed by AdCom and/or TPC members from the hosting region and approved by the AdCom. Criteria for approval may include historical contributions to the ISPSD (i.e., number of technical papers submitted) and an assessment of the capability of the proposed team and location to hold a successful ISPSD. The approval decision should be made at an AdCom meeting at least two years prior to the proposed open-site meeting.

For open-site meetings, the AdCom Chair of the Europe ISPSD should call for proposals from potential conference organizing committees from other regions and countries. This call should be made within three months after Europe ISPSD meeting closure and remain open for at least six months. The call for proposals should be closed three months before the start of the Japan ISPSD. An Application Form should be provided by the ISPSD AdCom. If no proposals are received during the open period, the conference should continue its three-region rotation until the next Europe conference.

Chairs

At least three years prior to the next conference in their region, AdCom members from each region will nominate candidates to serve as General Chair and TPC Chair (and Steering Chair, if desired) for the next conference in their region. These candidates will be presented to the AdCom for approval. It is recommended that General Chair candidates have served for at least three years on the TPC and for at least one year as a member of the Organizing Committee.

The General Chair of each ISPSD will have primary responsibility for management and operation of that year's conference. A Steering Committee Chair may be appointed to assist the General Chair in carrying out these responsibilities.

The TPC Chair will determine the membership of the TPC, in accordance with these guidelines, and lead the TPC in the process of abstract collection, paper selection, publication, and presentation at the conference.

[9] Technical Program Committee

The primary functions of the TPC are to solicit abstracts, to review them, and to select papers for publication and presentation at the ISPSD.

Organization

The TPC includes one TPC Chair, a Sub-committee Chair for each Sub-committee, and several TPC members. The target size of the TPC is about 15% of the average conference attendance. As of March 2013, the target membership is 60 people including the TPC Chair and Sub-committee Chairs, based on an average attendance of about 400 for the past three years. The target membership number may be adjusted by the AdCom as indicated by attendance patterns and other factors.

Sub-committees

The TPC comprises several sub-committees (i.e. tracks) based on technology categories. As of March 2017, the sub-committees are:

- High voltage devices (HV)

- Low voltage devices and power IC device technology (LVT)

- Power IC design (ICD)

- GaN and nitride base compound materials: Device and Technology (GaN)

- SiC and other materials: Device and Technology (SiC)

- Module and Package Technologies: System Integration in Package (PK)

As the industry and conference evolve, the AdCom should review, redefine, add, combine, and remove categories, as appropriate. [Appendix I]

Responsibilities

The TPC Chair is responsible for selection of Sub-committee Chairs, TPC member selection [Appendix III], and administration of the paper selection process [Appendix II]. Sub-committee Chairs are responsible for assisting the TPC Chair in the evaluation and selection of the papers assigned to their Sub-committee.

TPC members are expected to review and score all papers assigned by the TPC Chair, and to participate in the paper selection meeting. The TPC Chair and Sub-committee Chairs may also serve as paper reviewers. TPC membership is a personal assignment. TPC members should review papers themselves and not allow others to review papers on their behalf. Moreover, no representative will be allowed to attend the paper selection meeting on behalf of the TPC member.

Paper Selection Meeting

The venue and schedule of the paper selection meeting will be decided by the TPC. The meeting is preferably held in early December of the year prior to the ISPSD. The venue will be decided based on the convenience for all TPC members under consideration of the host region. This meeting is preferably held during some related conference or workshop, for example the IEDM, of the year prior to the ISPSD meeting, in order to foster participation by all TPC members from every region. Internet-based meeting access should be arranged for those TPC members who are unable to attend the meeting.

TPC members should not score those papers written by authors from the same affiliation (first authors or co-authors). During the paper selection meeting, TPC members should leave the paper selection meeting room whenever a paper by authors from their affiliation is being discussed.

TPC members have an obligation to keep the contents of submitted papers confidential.

Membership

The TPC Chair should be nominated by the AdCom members from the region in which the meeting will be held, and should be approved by the AdCom. The Sub-committee Chairs should be appointed by the TPC Chair. The TPC Chair is responsible for selecting the TPC members for the ISPSD conference that he/she is organizing. The following are guidelines for determining the TPC membership.

1. Members of the TPC should be recognized experts in the field of the Sub-committee on which they serve.

2. Industry, academia, and national labs should be represented in fair proportion to the number of contributions from the respective category.

3. Each region (Japan, North America, Europe, and Other) should be represented in fair proportion to the number of contributions from the respective region.

4. AdCom members, former General Chairs, and former TPC Chairs from each region should be consulted regarding TPC membership from their region.

5. New TPC members may be nominated by existing members of the TPC, AdCom, and/or Organizing Committee.

6. Preference should be given to candidates that exhibit the ISPSD values of open-minded thinking, high level technical ability, and good communication.

7. There should be no more than two TPC members from the same affiliation, and no more than one Sub-committee member from the same affiliation.

8. Members should serve a maximum of five consecutive years on the TPC and then take a break of at least 2 years before being asked to re-join the TPC. This policy will allow about 80% of existing members to serve in the following year, ensuring consistency, while also allowing regular opportunities for new people to participate.

9. Each year's TPC Chair should strive to improve membership balance among the regions and sub-committees.

10. To maintain regional balance, the target number of TPC members on each Sub-committee should be divided among the regions. An example of the target committee membership that provides equal representation is shown below. Regional representation in each Sub-committee could also be determined based on long-term trends in paper submission and presentation volume.

Region	HV subcom	LVT subcom	ICD subcom	GaN subcom	SiC subcom	PK subcom	Total TPC members
Japan	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	15
North America	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	15
Europe	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	15
Other	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	15
Total	8 to 12	8 to 12	8 to 12	8 to 12	8 to 12	8 to 12	60

[10] Plenary Sessions

The plenary session should consist of a minimum of one invited paper to a maximum of four invited papers (no more than one paper per one region) from the geographic regions of Japan, North America, Europe, and Other. The final selection of the plenary speakers is the responsibility of the Organizing Committee. It is recommended that the Organizing Committee consult with AdCom members from each region to identify appropriate speakers from their respective regions.

[11] Awards

The Charitat Award should be awarded each year to a young researcher (age less than 30 at the time of the conference) who is both a first author and presenter of a paper determined to be best overall among all eligible papers. Paper eligibility should be indicated during the abstract submission process. The Charitat award should be administered by the TPC each year and presented during the closing session of the conference. Traditionally, the Charitat award has been decided by a vote in a committee comprising a subset of the TPC and including fair representation from all of the regions.

The Ohmi Best Paper Award should be awarded every year to the authors of a paper determined to be the best overall by a popular vote of all TPC members in attendance at the conference.   The process should be administered by the TPC Chair with a goal of announcing the winner to the TPC members during the TPC dinner or equivalent gatherings.   The best paper award should be presented by this TPC Chair at the opening session of the following year's ISPSD.

The Pioneer Award has been awarded to individuals who were deemed to have made seminal contributions to the advancement of any of the ISPSD fields of interest.   This award has traditionally been given to a person who made their most significant contributions while working in the region that is hosting that year's ISPSD.   There has also been a bias toward recognizing an individual who has not yet received recognitions that are commensurate with their contributions.   Pioneer Award recipients were determined by the Organizing Committee with input from the TPC.   Starting in 2018, the Pioneer Award was discontinued in favor of the new ISPSD Hall of Fame recognition.

The ISPSD Contributory Award has been presented occasionally for outstanding service to the conference.   These awards were administered by the AdCom.   AdCom members nominated potential awardees and the entire AdCom voted to determine whether or not the nominees should be presented with a Contributory Award.   Starting in 2018, the Contributory Award was discontinued in favor of the new ISPSD Hall of Fame (IHF) recognition.

The ISPSD Hall of Fame

The purpose of the IHF is to honor individuals who have made high impact contributions in advancing power semiconductor technology and/or in sustaining the success of the ISPSD. Starting in 2018, the IHF replaced the "Contributory Awards" and "Pioneer Awards." The IHF inductee list will be "permanently" displayed on the ISPSD website from year to year.

An IHF Selection Committee will be appointed by the ISPSD AdCom which should include the next General Chair of the ISPSD as a voting member. The selection committee is preferably a Sub-committee of the AdCom. The IHF Selection Committee accepts nomination from all sources, particular those from the Organizing Committee of the next ISPSD. The criteria for Induction into the IHF requires:

1. High-impact contributions to any of the ISPSD fields of interest

2. Significant and sustained contributions to the field presented at ISPSD; and/or

3. Demonstrated leadership to sustain the success of the ISPSD conference.

The IHF is intended for individuals who have demonstrated a longstanding commitment to the field of power semiconductors and to the ISPSD community with significant contributions dating back at least ten years. Except for special circumstances, the number of award recipients per year shall be limited to two persons. Generally, IHF award recipients will be selected and receive their award at an ISPSD conference held in the geographic region in which they made their contributions.

[Appendix I]

Technology categories of sub-committees were revised by the AdCom meeting of ISPSD2017

1. High voltage devices (HV)

High voltage silicon based discrete devices (> 200V), including:

- •IGBTs, thyristors, GTOs, and PiN diodes
- •Superjunction MOSFETs and new unipolar devices
- •High voltage power device failure mechanisms
- •Wafer technology and lifetime controls
- •New gate drive methods to enhance IGBT and Superjunction MOSFET performance
- •Safe operating areas and current filament effects in IGBT
- •New edge terminations
- •Simulation or measurement technologies related to this category

2. Low voltage devices and power IC device technology (LVT)

Low voltage silicon base discrete power devices (≤ 200V) and power devices for power ICs for all voltage ranges, including:

- •High performance power MOSFET for DC-DC converters
- •LIGBT, LDMOS for 600V power ICs
- •SOI power devices for power ICs
- •Power device designs on BCD technology
- •Device isolation technologies
- •MOSFET structures for level shifters
- •Process integration for low voltage power devices
- •SOA of LDMOSFETs
- •Simulation / measurement technologies related to this category Footnote:

  The LVT category covers device designs, device ideas and device physics etc..

3. Power IC design (ICD)

Circuit design and demonstration using power IC technology platform, including:

- •Gate driver circuit design including WBG power device applications

- Circuit design for SiC and GaN based IC

- New circuit and layout design enhancing power IC performance

- Single chip inverters and converters

- New signal isolation technology on power IC such as magnetic coupling

- Power SoC and passive component integration on a chip

- ESD protection circuit

- Compact circuit model for power IC design

- New type of hybrid power ICs

- Modeling, design platform and measurement technology for power IC

Note: ICD category covers power IC circuit design, system integration, IC architecture, etc.

4. GaN and nitride base compound materials: Device and Technology (GaN)

GaN and nitride base power devices technology and integration, including:

- AlGaN/GaN hetero devices

- Vertical GaN MISFETs,

- AlN power devices

- Special circuit and application for GaN and nitride base power devices

- GaN and nitride base power IC technologies

- Special application for GaN and nitridel devices

- New process integration for GaN power ICs

- Simulation/measurement technology related to this category

5. SiC and other materials: Device and Technology (SiC)

SiC and other material base power devices technology and integration, including:

- SiC power MOSFET, IGBT, and SIT devices and process development

- SiC power IC technologies

- Diamond power devices

- Gallium oxide power devices

- Special application for SiC and other material devices

- New process technology for SiC and other material devices

- Simulation/measurement technology related to power device

6. Module and Package Technologies: System Integration in Package (PK)

Module and Package technology for discrete power devices and power ICs, including

- Power module, transfer molded package demonstration
- Power module design including wire frame
- Chip current and temperature measurement
- Pressure contact packages for high power system applications
- Thermal management and new cooling technology
- Stress and strain simulation for package structures and materials
- 3D-package and stray inductance management
- Package design against noise and switching losses
- Reliability physics and failure analysis related to package design and material
- Package insulation technology and material, high temperature endurance
- Power SiP hardware design
- Application specific aspects (considering system integration e.g. different sub-topology, etc.)
- Simulation/measurement technology related to this category

[Appendix II]

The purpose of Paper Acceptance Criteria (PAC) in the paper selection process is:

1. to keep the ISPSD as the premier technical conference for Semiconductor Power Devices & ICs

2. to promote technical sharing of ideas, trends, and innovations in the field

3. to remain as the best conference to attend for experts or new researchers, practicing engineers, and students so that they can learn and share their experiences about new innovations in the field of devices and applications.

The PAC consists of two-tier systems with technical items and material content/presentation quality. The submitted papers are put in 6 technical items with different weighing factors (WF). Each item has 5-grade ratings of material content/presentation quality. The total score for each submitted paper is the sum of 6 technical item points, multiplied by the rating point of the quality by the WF of each item [Table]. The WFs of each item are proposed by the General Chair and TPC Chair (and the Steering Chair, if desired), and approved by AdCom members.

Table.　Evaluation Table for Paper Acceptance Criteria (PAC): Sample

Items of PAC	Novelty of concept	Potential impact Including applications	Experimental support	Theoretical or simulation support	Clarity of figures and technical writing	Review of prior work
Weighing(A) / Rating(B)	1.0	1.0	0.9	0.7	0.8	0.6
4	Excellent	Creating New Field	Excellent	Excellent	Excellent	Excellent
3	Good	Radical Impact	Good	Good	Good	Good
2	Interesting	Incremental Impact	Average	Average	Average	Average
1	Minor Change	Small Impact	Poor	Poor	Poor	Poor
0	Nothing	Nothing	Nothing	Bad	Bad	Nothing
A x B	3.0	2.0	0	2.1	2.4	1.2

Total Score: Σ (A x B) = 10.7 (MAX: 20.0)

[Appendix III]

TPC members have a very important role in selecting high quality papers is critically important to keep the ISPSD as the premier technical conference for Semiconductor Power Devices & ICs, and to remain as the best conference to attend for expert or new researchers, practicing engineers and students so that they can learn and share their experiences about new innovations in the field of devices and applications.

TPC member selection is conducted in accordance with two-tier systems of affiliation and personal comprehensive knowledge and ISPSD contributions based on the clause [9] in these Guidelines.

1. Accepted paper points (APPs) for the past ten years are listed for each affiliation. APPs are 2 points for an oral paper and 1 point for a poster paper, respectively. Co-authors share points proportionately on an affiliation basis.
2. An Expert with personal comprehensive knowledge and high ISPSD paper quality in each affiliation with high APPs is elected as a TPC member by the TPC Chair.
3. The TPC chair counts APPs and sends them to the next TPC Chair.