

CHARTER OF THE NANOELECTRONICS AND GIGASCALE SYSTEMS (NG) TECHNICAL COMMITTEE (TC) OF THE IEEE CIRCUITS AND SYSTEMS SOCIETY

1. Preamble

The Nanoelectronics and Gigascale Systems Technical Committee (NG TC or the Committee or the TC) is a Technical Committee of the IEEE Circuits and Systems Society (CASS or the Society). As a subsidiary committee of IEEE CASS, the NG TC is governed by the rules and regulations of the IEEE and by the Constitution and Bylaws of CASS, which take precedence over this Charter in case of conflict.

TCs are established by IEEE CASS in significant fields of interest of the Society, through its Technical Activities Division (TAD), to advance the state of knowledge and educate Society members and the general IEEE membership. To these ends, the NG TC plays a major role in creating a high quality technical program for the Society's flagship conference, the International Symposium on Circuits and Systems (ISCAS). TCs also may organize or contribute to other workshops and conferences, special sessions at conferences, and tutorial programs, and undertake other activities to help better achieve their purpose.

Further, the NG TC may act as a bridge between CASS and related IEEE Societies and Councils, and other institutions in the general area of the TC.

2. Purpose

The ongoing purpose of the NG-TC is to provide a networking forum for leaders in the field and promote the exchange, advancement and dissemination of information about the research, development and practice of nanoelectronic technologies, systems and applications.

The goal of the NG-TC is to gather more IEEE-CASS and other related members to promote research and education in the field of using nano-structures/ nano-devices to form nanoelectronic integration systems. With the exciting opportunities, research on nanoelectronics and that on giga-scale systems are tightly coupled together. Nano areas include, but are not limited to, nano-devices, nano-circuits & nano-architectures; nano-sensors, nano-actuators & nano-robotics; reliability and manufacturing issues; non-silicon nanoelectronics; spintronic-based technology, circuits and systems; emerging memory and memristor based technology, circuits & systems; and circuits & systems for quantum computing. Giga-scale systems design aspects include system, architecture, electronic system level, hardware/software co-design, design methodologies, and test. The applications to computer, communication, consumer and car electronics and the heterogeneous integration for bio and green electronics are more than welcome.

3. Activities

The NG TC activities include:

- a) Organizing that part of the technical program of ISCAS related to the NG TC field; this includes review of all papers submitted to ISCAS in tracks on topics in the NG field (appointing TPC Track Chairs, Review Committee Members [RCMs] and paper reviewers), and arranging Tutorials, Special Sessions, Workshops and other sessions
- b) Nominating individuals for (1) Society Awards, (2) Editorial appointments, (3) Distinguished Lecturer appointments, and (4) roles as CASS representatives for Steering and other Committees arising from joint efforts with other Societies and Councils
- c) Nominating papers for CASS journal Best Paper awards
- d) Preparing the TC Annual Report
- e) Preparing information for periodic Review of the TC by the Society
- f) Maintaining the TC website
- g) Reviewing and, if needed, updating the TC Vision & Mission statements at least every 5 years
- h) Assessing the quality and helping to maintain/raise the quality of any CASS-sponsored conferences in the field
- i) Other activities to help achieve the Purpose

4. Membership

Any CASS or IEEE member of good standing and willing to perform the duties of membership may seek to join the NG TC. Membership requires nomination by a current member and is approved by a majority of voting members after at least two weeks notice either present at the Committee's Annual Meeting or by internet ballot of the membership.

All new member nominees should attend the TC meeting at ISCAS and express their interest to be very active members. A member is said to be active if they participate at least once every two years in one of the following: (i) attending the TC meeting; (ii) submitting a write-up for inclusion in the TC's annual report; (iii) serving as Review Committee Member or Reviewer for ISCAS paper submissions; and (iv) actively contribute to another Activity carried out by the TC, as listed in Clause 3 Activities (a) to (i) of this Charter.

A member is said to be inactive if they have not participated in one of the aforementioned four activities for two consecutive years. The Chair-Elect will email all inactive members to encourage them to become active. Members who do not respond or who give sufficient cause for a 2 year absence yet fail to contribute for a 3rd consecutive year will automatically be removed from the Committee.

The TC will maintain and publish annually the TC Roll of Members, including email addresses, a record of attendance at the Annual Meeting and participation in activities.

5. Duties and Election of Officers

The Committee shall have three officers: Chair, Chair-Elect and Secretary. Each will serve a two-year term.

The Chair, supported by the other Officers, is responsible for

- (a) ensuring that the purpose of the TC is well achieved through timely and diligent execution of the activities,
- (b) ensuring that the TC operates according to all other aspects of its Charter, and
- (c) establishing the TC Chair as a well-known channel of communication between the TC and the CASS Board of Governors.

The Chair will preside over Committee meetings and will be responsible for all interactions with the Society. She/he will report on Committee activities to the CASS Board of Governors, through its Vice President, Technical Activities, at least once a year, before ISCAS.

The Chair is a member of the CASS Technical Activities Division (TAD) and will attend the Annual Meeting of the TAD, normally held at the ISCAS site during or shortly before the symposium.

The Chair is normally not directly elected and is filled by transition of the Chair-Elect at the end of their two-year term. An out-of-sequence election for the Chair can be held should the Chair-Elect be unable to assume the role of Chair.

The Chair will oversee all activities of the TC, calling on assistance from the Officers and other members as necessary, and will be responsible in particular for: chairing the ISCAS TC Track; soliciting and making the TC's nominations of individuals for awards and for editorial, Distinguished Lecturer and CASS representative roles; soliciting and making the TC's nominations for Best Paper Awards; ensuring preparation of the TC Annual Report; preparing material for and participating in periodic TC Reviews; and maintaining the TC vision and mission; i.e. for aforementioned Clause 3 Activities (a), (b), (c), (d), (e) and (g). The Chair may be assisted by sub-committees for collecting candidates for various nominations such as editorships or society awards. The Chair will appoint chairs and members of these sub-committees.

The Chair-Elect is elected by the Committee members and must be a member of the Committee. The person elected will serve a two-year term as Chair-Elect commencing immediately after the ISCAS of his/her election. At the end of their term the Chair-Elect will become the Chair.

The Chair-Elect will assist the Chair as necessary in all activities, will participate in the TC Review meeting, will maintain the roll of the Committee including email addresses, a record of attendance at the Annual Meeting and participation in activities, will audit the member role and notify any members of lapses in activity, and will be responsible in particular for: quality assessment and maintaining/raising the quality of CASS-sponsored conferences in the NG TC field; and other activities undertaken by the TC; i.e. for aforementioned Clause 3 Activities (h) and (i).

The Secretary is elected by the Committee members and must be a member of the Committee. The person elected will serve a two-year term as Secretary commencing immediately after the ISCAS of his/her election.

The Secretary will record meeting minutes and ensure their expeditious posting on the TC website, will carry out special tasks discussed in the committee's meeting, and will be the focal point for maintaining the NG TC website i.e. for aforementioned Clause 3 Activities (f).

6. Meetings and Conduct of Business

Business relevant to this Charter may be conducted at meetings or by ballot via the internet.

Meetings may be held in-person, typically at a conference, or by electronic means.

- A meeting quorum is Ceiling function of one third of the TC members.
- A minimum of two weeks notice of any Motions shall be provided to voting members prior to the close of voting to allow members to consider the issues, except as otherwise provided in Clause 7 of this Charter.
- A majority of the legal votes cast by the TC members attending a meeting with a quorum is necessary to approve a motion, except as otherwise provided in Clause 7 of this Charter.
- For internet ballots, voting by a minimum of one-half of the TC members is a valid ballot.
- If a quorum is not reached, tentative actions may be taken which will become effective after subsequent ratification, either by internet ballot or at a subsequent meeting.

The Committee Annual Meeting shall be held at ISCAS. Any CASS or IEEE member is allowed to attend this Annual Meeting as an observer; the Chair may invite other observers to attend and speak.

At the Annual Meeting,

- An agenda is circulated prior to the meeting
- The NG TC Chair will present an annual report on membership, activities and progress on achieving the TC vision and mission
- TC members will vote to elect new members and new Officers, if any
- The members may discuss any other business relevant to the TC Charter
- The members may vote on Motions provided the required notice periods are met; a quorum is needed to resolve any motions at the meeting

7. Charter Amendments

Any charter amendment, including closing the NG TC, can be considered at a meeting provided that the Chair and Chair-Elect have been notified at least one month prior to the Meeting. Approval by the Officers is not necessary, but notification is required. An approved amendment will take effect the day following the conclusion of the ISCAS meeting when it has been approved.

Motions to Amend the Charter and to Close (i.e. shut down) the TC have special conditions to be consistent with CASS and IEEE rules. The conditions for such ballots at a meeting and by internet ballot differ:

(i) Internet Ballot: voting by a minimum of one half of the TC members is a valid ballot; a two-thirds majority is required to pass the Motion

(ii) Ballot at TC Meeting: a Special Quorum of the Ceiling function of one-half of the TC members at the meeting is required; a two-thirds majority is required to pass the Motion