



Technical Committee on Transmission, Access, and Optical Systems (TAOS)

Annual Activity Report

Period: January 1, 2012- December 31, 2012
Date of release: April 2013
Author: Tarek S. El-Bawab, Chair, telbawab@ieee.org
TAOS Contacts: Tarek S. El-Bawab, Chair, telbawab@ieee.org
Ravi Subrahmanyam, Vice Chair, Ravi.Subrahmanyam@ieee.org
Michael Devetsikiotis, Secretary, mdevets@ncsu.edu

1 General 2012 Trends

1.1 Themes and Strategic Focuses

Broadband Access (Copper, Optical, and Wireless; Telecom, Cable, and Utilities) continued as current *Theme* for TAOS technical activities. Also, our TC maintains special focus on Green Communications. The adoption of these two strategic technical areas is due to emerging interest in both of them among TAOS' and the global ComSoc communities. Also, both areas are of particular interest to the Telecom industry, which provides opportunities to engage more industrial membership into ComSoc conferences and activities.

As part of these trends, TAOS has been sponsoring two Tracks in the ICC/Globecom Symposia on Selected Areas in Communications (SAC), i.e. the Access Networks and Systems (ANS) Track and the Track on Green Communication Systems and Networks (GCSN). These tracks are now established as regular successful establishments within the SAC Symposium and enjoy considerable industrial participation. The introduction of the ANS and GCSN new Tracks into ICC and Globecom makes TAOS one of the largest and most versatile TC in terms of contribution to ICC and Globecom.

Meanwhile, TAOS continues its traditional activities in the area of optical system (for metro and core networks) with considerable membership with optical background.

2 Organization and Administrative Update

2.1 Officers

Election has been held during TAOS' GC 2012 meeting (Anaheim) for a new term. The following will serve as TAOS officers for the two-year term extending from January 1, 2013 to December 31, 2014:

- Tarek S. El-Bawab, Chair
- Michael Devetsikiotis, Vice Chair
- Ahmed Kamal, Secretary

2.2 Website and Mailing list

Walter Cerroni was appointed as TAOS' Webmaster.

Several website updates, improvements, and structuring have been carried out and others in progress (www.comsoc.org/~taos/).

Mailing list is expanding and policy update of the TC mailing list has been published. Moderation of the list has been successful in preventing abuse and spamming. We have had some (10-15) new addresses added throughout 2012 and few (2-3) un-subscribers.

2.3 Membership and Leadership Updates

Throughout 2012, TAOS has exerted effort in attracting new blood and new volunteers/activists, from all over the world, to participate and enrich our membership and our scope of technical activities. TAOS' meetings are now seeing steady rise in attendance with diversity in technical and geographic backgrounds (males/females). Attendance in our Globecom 2012 meeting has reached peak record.

Throughout 2012, TAOS nominated several new Co-Chairs for upcoming ICC and Globecom conferences; and introduced so many new TPC members into our sponsored conferences. We maintain a ratio of about 50% of "new blood" in our nominations for ICC/Globecom Chairpersonship, including industrial participants. Our policy is to make new nominations out of a pool of tested reviewers and TPC members from past conferences. The remaining 50% of our nominations usually utilize our rich base of experienced professional and ex-/current officers.

3 Technical Activities

3.1 Conferences (Sponsorship and Support)

TAOS have so far maintained useful statistics about ICC/GC paper submission in symposia/tracks which are sponsored by our TC. These statistics cover technical areas, submission figures, acceptance figures, and trends thereto. Anybody interested in exploring these statistics can visit our website and check our minutes of meetings and meeting slides.

TAOS contributed to major IEEE ComSoc (and ComSoc-Sponsored) conferences, in terms of organization, setting up technical program, program committee formation, papers' evaluation, acceptance, etc. Examples of the 2012 conferences to which we contributed include:

3.1.1 ICC and GLOBCOM

- ICC 2012 (Ottawa, Canada, June 2012): J. Elmirghani served as SAC Access Systems and Networks (ASN) Track Chair, V. Vokkarane served as Optical Networks and Systems (ONS) Symposium Co-chair, and J. Gibson served as Wireless Communication Systems (WCS) Symposium Co-Chair.
- GC 2012 (Anaheim, California, USA, December 2012): S. Bregni served as Conference Technical Program Vice-Chair. R. Subrahmanyam served as SAC Access Systems and Networks (ASN) Track Chair, M. Devetsikiotis served as SAC Green Communication

System and Networks (GCSN) Chair and T. El-Bawab served as Optical Networks and Systems (ONS) Symposium Co-Chair. A. Kamal also served as Cognitive Radio Networks (CogRN) Symposium Co-Chair.

- ICC 2013 (Budapest, Hungary, Summer 2013): Michael Peeters serving as SAC Access Networks and Systems (ANS) Track Chair, A. Manikas serving as SAC Green Communication Systems and Networks (GCSN) Track Chair, Franco Callegati serving as Optical Networks and Systems (ONS) Symposium Co-Chair.
- GC 2013 (Atlanta, GA, USA, December 2013): Filippo Cugini serving as as SAC Access Networks and Systems (ANS) Track Chair, Stefano Bregni serving as SAC Green Communication Systems and Networks (GCSN) Track Chair, and S. J. Ben Yoo serving as Optical Networks and Systems (ONS) Symposium Co-Chair.
- ICC 2014 (Sidney, Australia, June 2014): Tarek El-Bawab is serving as SAC Access Networks and Systems (ANS) Track Chair, Fabrizio Granelli is serving as SAC Green Communication Systems and Networks (GCSN) Track Co-Chair, and Philippe Perrier serving as ONS Co-Chair
- GC 2014 (Austin, Texas, December 2014): Frank Effenberger is serving as SAC Access Networks and Systems (ANS) Track Chair, and Jaafar Elmirghani serving as SAC Green Communication Systems and Networks (GCSN) Track Co-Chair

3.1.2 GC2012 Workshop on *Flexible Optical Networks* was organized and chaired by F. Cugini and T. El-Bawab

3.1.3 Other ComSoc-Sponsored Conferences

- 2012 NIST-ATIS-Telcordia Synchronization workshop (Leadership and TPC membership)
- ONDM 2012 (TPC contributions)
- FITCE 2012 (TPC contributions)
- HONET 2013 (Leadership and TPC membership)

3.2 Best Reading Project on Broadband Access

Project was completed and published in 2012. Project Group was comprised of :

- Frank Effenberger, Huawei Technologies (Project Leader)
- Dong Wei, Huawei Technologies
- Junichi Kani, NTT Labs
- Thomas Pfeiffer, Alcatel Lucent
- Pat Ianonne, AT&T Labs
- Changhee Lee, LG-Ericsson
- Neda Cvijetic, NEC Labs USA
- Thomas Banwell, Applied Communication Sciences
- Fabrizio Granelli, University of Trento

3.3 Synchronization Activities

Additional additional papers on Synchronous Ethernet, PON and Router characteristics are/to-be published. They are put into the open queue (not bundled as a special issue) due to time constraints. These papers are follow up of our special section on Synchronization over Ethernet and IP in NGN (Communications Magazine, February 2011, guest edited by S. Bregni and R. Subrahmanyam). TAOS also contributed to the successful IEEE Comsoc Webinar on "Synchronization in Next Generation Telecom Networks" held on October 18, 2012. Ravi Subrahmanyam was one of the panelists and Mayer moderated the panel.

TAOS' 2012 minutes of meetings and slides provides further details about specific Technical Activities.

4 Contributions to ComSoc Committees and Leadership Positions

TAOS continues to provide ComSoc with senior/leadership support in numerous technical and administrative areas. The following are 2012 examples:

- ComSoc Board of Governor: Stefano Bregni and Steve Gorshe (Members at Large)
- Education Board: Tarek El-Bawab (Board Member and Chair of the Telecommunication Engineering Work-Group)
- IEEE Communications Magazine: Steve Gorshe (Editor-in-Chief); Frank Effenberger, Tarek El-Bawab and Ravi Subrahmanyam joined Editorial team
- IEEE Transactions on Communications: A. Bononi (Editor)
- IEEE Communications Surveys and Tutorials: Maode Ma (Senior Editor); Stefano Bregni, Michael Devetsikiotis, Fabrizio Granelli, and Ahmed Kamal (Editors)
- GLOBECOM/ICC Technical Content (GITC) Committee: Michael Devetsikiotis (Vice Chair)
- Jaafar Elmirghani appointed Chair of a cross IEEE Societies Green ICT Working Group. This group will sit in the IEEE Technical Activities Board (TAB) - Future Directions Board (FDC).
- Ad Hoc Committee on Smart Grid Communications: S. Bregni
- Ad Hoc Committee on Cloud Communications and Networking: M. Devetsikiotis
- Editorial Board of Communications Technology News (CTN) initiative: Ravi Subrahmanyam
- IEEE Global Communications Newsletter: S. Bregni (Editor)

5 TAOS Members Elevated to IEEE Fellows, or Served as Distinguished Lecturers

- Elevated to IEEE Fellow: Michael Devetsikiotis, Ahmed Kamal, George Rouskas, Stefano Galli, and George Ginis
- Served ComSoc Distinguished Lecturer: Ahmed Kamal and Jaafar Elmirghani

6 Awards

A new awards program has been introduced in 2012 to recognize special contributions from individuals of the Global TAOS community. First set of awards were presented in our Globecom 2012 meeting in Anaheim:

- Outstanding Service Award presented to **Frank Effenberger** in recognition of his leadership and contribution to TAOS' best readings Project: Broadband access
- Best Paper Award in the GC'2012 SAC Track on Access Systems and Networks (ASN) presented to **Yu-Sian Li, Trang Minh Cao, Xin Huang, Cheng-Hsin Hsu and Po-Ching Lin**, for their paper: *CacheQuery: A Practical Assymmetric Communication Algorithm*
- Best Paper Award in the GC'2012 SAC Track on Green Networks and Communication Systems (GNCS) presented to **Shengrong Bu and F. Richard Yu**, for their paper: *Dynamic Energy-Efficient Resource Allocation in Cognitive Heterogeneous Wireless Networks with the Smart Grid*
- The 2012 TAOS Distinguished Service Award to **Ravi Subrahmanyam** for serving as TAOS Vice Chair and Secretary for four years