State of the Society

May 2013

K. J. Ray Liu, President

IEEE Signal Processing Society

IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2013 Vancouver, Canada

What's New?   … A lot!

- New Organizational Changes
- New Awards
- Membership Growth
- New Educational Activities
- New Conferences
- Publications Growth
- New Initiatives

… All bring New Challenges!

IEEE Signal Processing Society （SPS) Organizational View
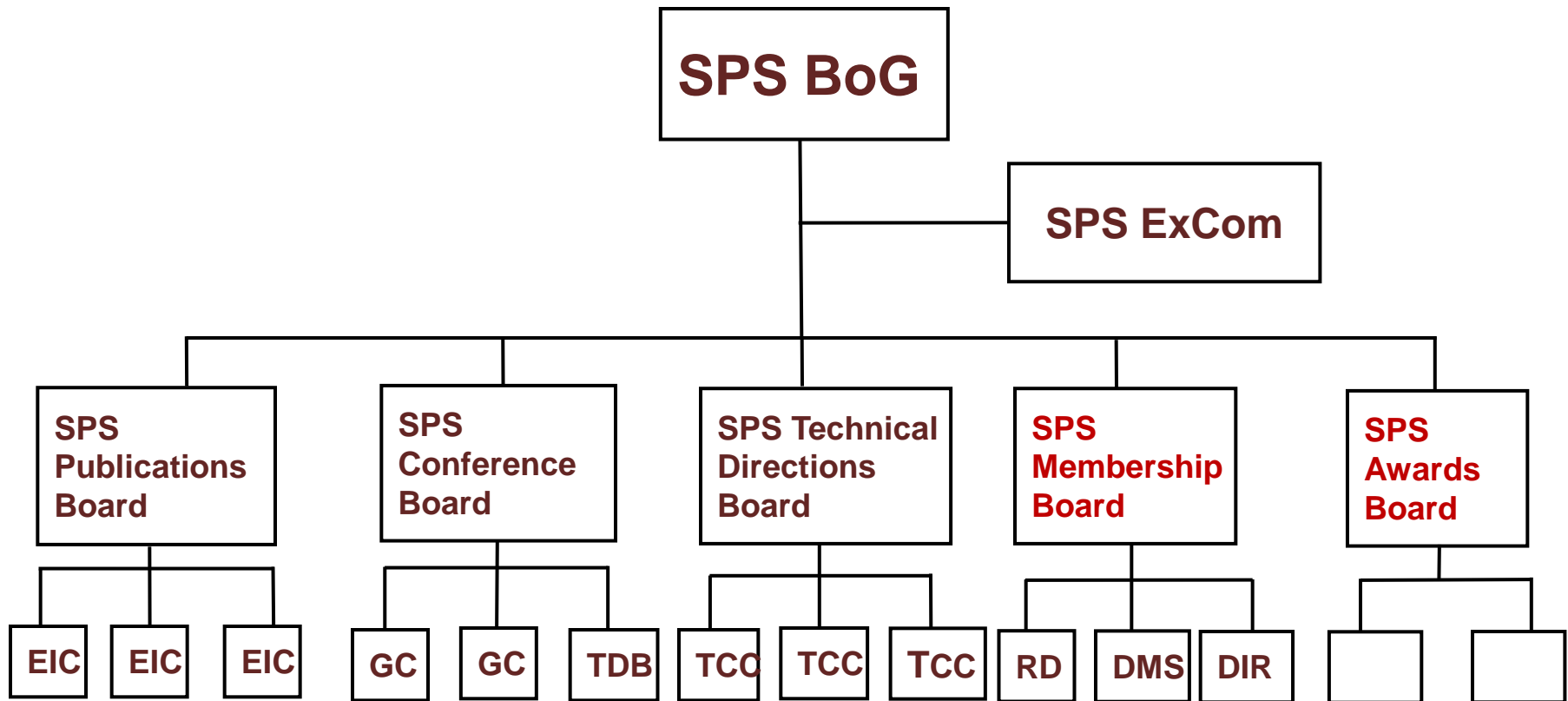
Recent Organizational Changes

- **Separation of Membership and Award Boards**
  - New Vice President—Membership
  - New Award Board Chair: a non-voting BoG member

- **President-Elect will be Society Treasurer from 2015**
  - Will replace the position of Vice President-Finance

- **New election process for President-Elect:**
  - Presentation of candidates, discussion, and vote during annual BoG meeting at ICASSP

IEEE Signal Processing Society

Newly Elected in Leadership

- Vice President–Membership:

    Kostas Plataniotis
    (Univ. Toronto)

- Award Board Chair:

    José M. F. Moura
    (CMU)

New Society Staff

- ## Executive Director:
  ### Rich Baseil

  30+ years industry experience in engineering and management at Bell Labs, Bellcore, Telcordia Technologies, Cisco, MITRE, RAND. Part-time teaching adjunct at NJIT.

- ## Conference Services Manager:
  ### Helen Pollard

  10+ years experience in site selection, contract negotiations, budget management, exhibits management, sponsorship development, vendor relationships, and more

Awards Board: An Update

- Change of award nomination process

    – Accept nominations from all boards, committees, and individuals

- Change of award selection process – Awards Board will vet on all nominations

- No board/committee can nominate its own members in order to minimize potential conflict of interests ...

SPS Awards

- IEEE Jack S. Kilby Signal Processing Medal (est. 1995)
- IEEE James A. Flanagan Speech and Audio Processing Technical Field Award (est. 2002)
- IEEE W.R.G. Baker Prize Paper Award (2011)
- IEEE Jean-Baptiste Fourier Technical Field Award for Signal Processing (newly approved)

- Society Award
- Technical Achievement Award
- Education Award
- Meritorious Service Award
- Best Paper Award
- Signal Processing Letters Best Paper Award (newly approved)
- Signal Processing Magazine Best Paper Award
- Signal Processing Magazine Best Column Award
- Young Author Best Paper Award

SPS Budget and Finance
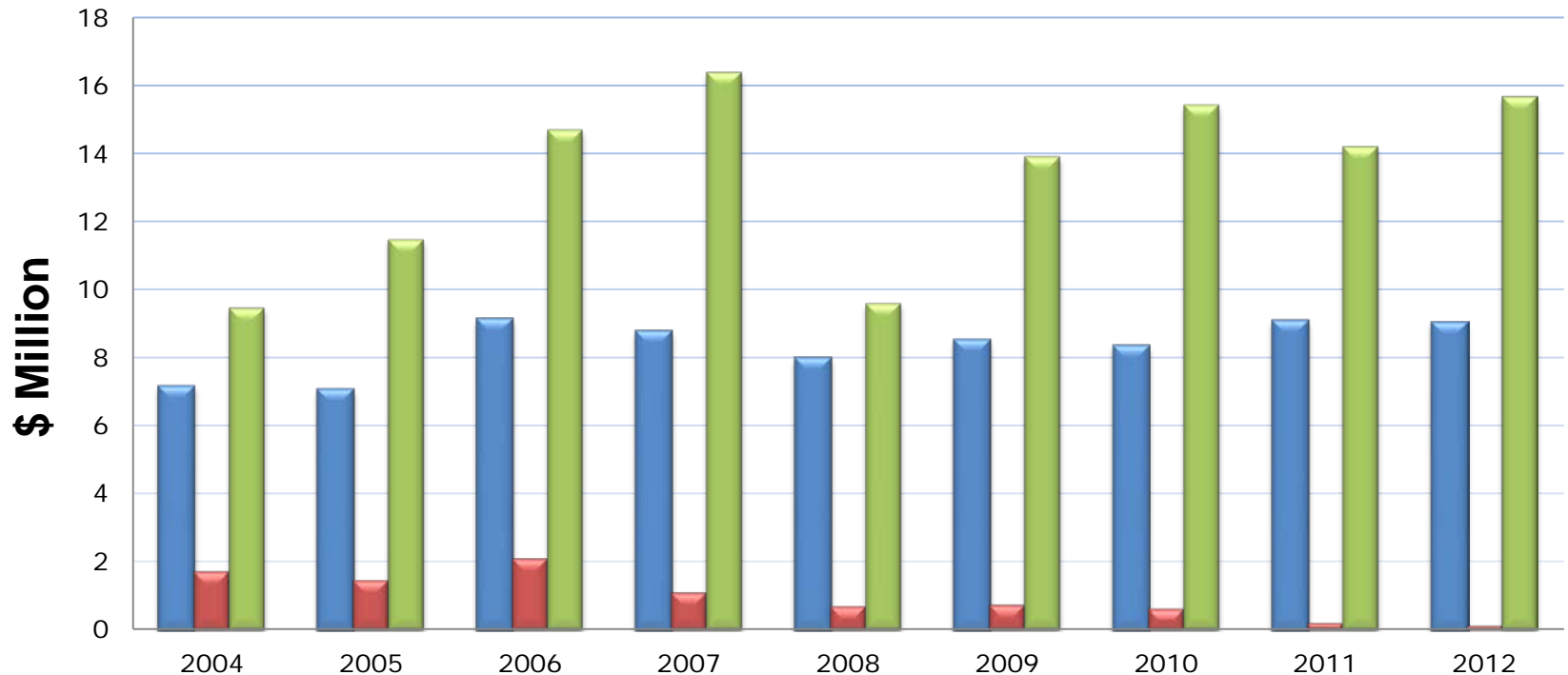
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Operation Income	7.13	7.04	9.11	8.75	7.96	8.49	8.32	9.05	9.00
Operation Surplus	1.68	1.44	2.06	1.08	0.683	0.723	0.608	0.202	0.124
Reserves	9.46	11.47	14.68	16.37	9.59	13.89	15.41	14.18	15.65

('12 FM-13 per March 2013)

Memberships: Long Term Trends

IEEE/Total Society Memberships/SP Society (Dec. 1988-2012)
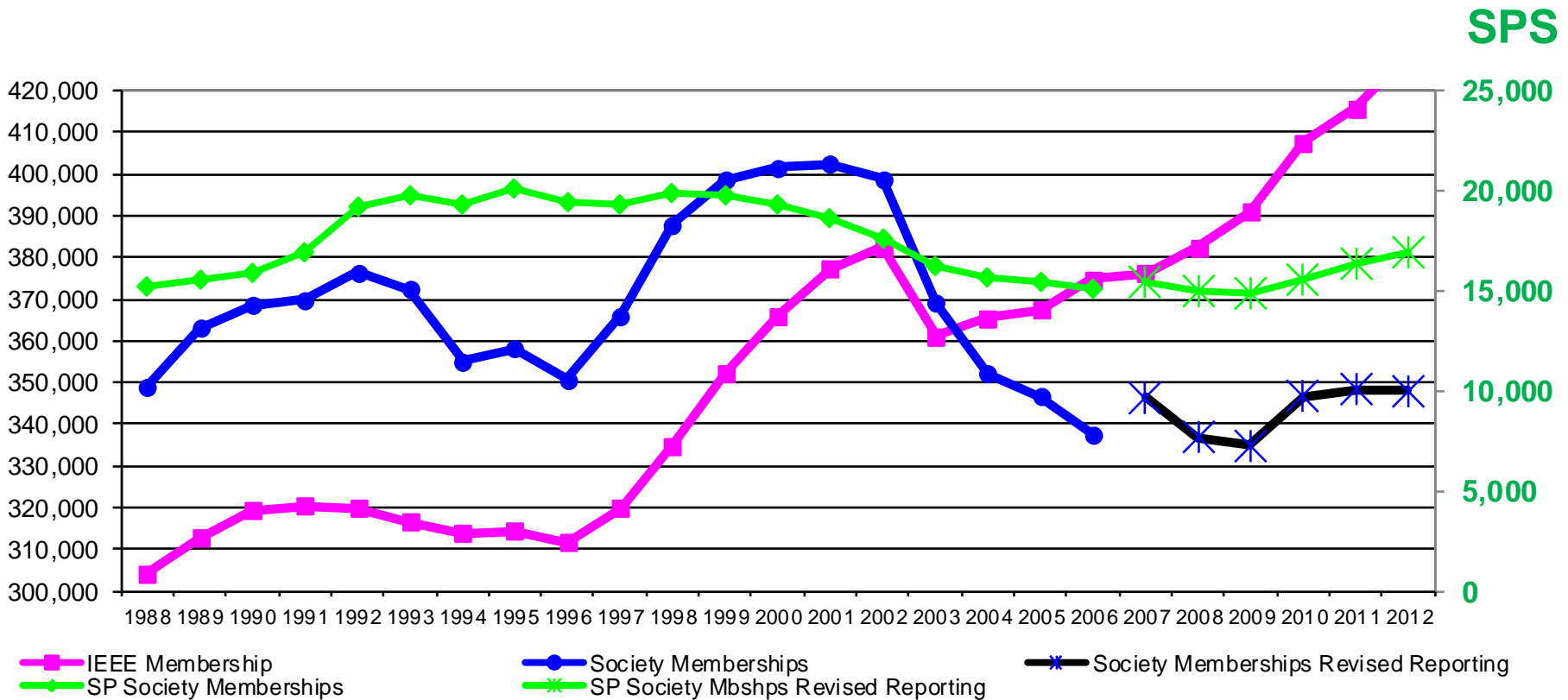
Note: Effective 2007, Society membership totals appear higher as a result of a change implemented in the way current memberships are counted . Memberships cancelled during renewal (Sept-Dec) for the following membership year are counted in current year end totals. In prior years, these non-renewing members were not included in totals.   Effective 2008, Society membership totals reflect a decline of 9,405 memberships which included the cancellation of approx. 6,000 Engineering Management Society memberships due to the Society's conversion to a Council. Decline also includes loss of 3,000 Computer Society affiliates.

Seasonal Schools (Carlo Regazzoni)

- **Main objective** of Seasonal Schools in Signal Processing (**S3P**) Program (established in 2010)
  - Membership development for students with interests in signal proc. www.signalprocessingsociety.org/community/seasonal-schools/

- **Completed Seasonal Schools:**

Dates	Location	Topics
Sept. 3-6, 2012	**Turkey**	"Game Audio"
Aug. 20-24, 2012	**UK**	"High Performance DSP & FPGA implementation of SP Systems"
July 2-6, 2012	**Australia**	"Social Media Processing"
July 2-6, 2012	**Taiwan**	"Compressive Sensing and MIMO Signal Proc. Systems"
Jan. 16-20	**Greece**	"Speech and Audio Processing for Immersive Environments and Future Interfaces"
Sept. 3-7, 2011	**Austria**	"Networked Embedded Systems"
July 4-8, 2011	**Taiwan**	"3D & High Definition/High Contrast Video Proc. Systems"
Aug.-Sept. 2010	**Netherlands**	"Models for Embedded Signal Processing Systems"

Tutorial & Educational Program
(John McAllister)

Goal: To offer online multimedia e-learning contents for continuing education and training.

- **Live at www.brainshark.com/sps**
- Open member access: viewing or contribution
- Open Calls: send proposals to spsotl@ieee.org

- Keeping up-to-date with social media

  IEEE Signal Processing Society Group

  www.facebook.com/ieeeSPS

  @SPSotl

ChinaSIP (Min Wu)

- A new SPS regional conference in China as a unique outreach platform
  - Help colleagues in China engage with global community
  - Offer global colleagues opportunities to network and develop international collaborations

- **1st ChinaSIP** will be launched in July 2013 in Beijing
  - Technical sessions, complemented by summer school, plenary & invited talks, professional development panels & industry panel
    http://www.chinasip2013.org/
  - 2nd edition under planning for Xi'an in Summer 2014

- **ChinaSIP** Technical Interest Groups
  - Provide review workforce and quality assurance for the conf.
  - Facilitate technical community building in China

SigPort (Min Wu)

- **"Signal/Info Processing Technical Report Repository"**
  - An online archive of users' manuscripts, pre-prints, reports, student theses etc.

- Provide an early citable access to reports that users wish to share with time-stamp
  - Complement formal publication in conf./journals with EDICS
  - Authors retain copyright and free to submit for publication
  - Possibly serve as pre-submission to formal publications

- Moderate fee to ensure sustainable archiving

- **Phase-1 Pilot** development plan is underway
  - Expect to launch a trial in the fall

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Student Services (Kenneth Lam)

- **Student Career Luncheon**:
  - A new activity organized for students and companies to meet
  - Jointly work by the *Student Services Committee* and the *Industrial Relations Committee* as a regular feature at ICASSPs
  - The first Luncheon will be held at ICASSP 2013 on May 30
  - 140 students/fresh graduates and about 50 people from 14 companies registered for attending the event

- **"Signal Processing Cup" Competition for Students**
  - Opportunity for grad & undergrad students to form teams and work together to solve a challenging and interesting real-world problem using signal processing techniques and methods.
  - Inaugural event is planed for ICASSP 2014.

- **IEEE SPS Travel Grants**:   The committee is responsible for selecting travel grantees to attend ICASSP and ICIP.

  http://www.signalprocessingsociety.org/membership/sps-travel-grants/

Industrial Relations (Mazin Gilbert)

- **Ambassador Program**
  - identifying ambassadors representing each company
  - to establish programs, courses, and events that are of value to the companies
  - started recently with a LinkedIn page and 25 ambassadors
- **Emerging Signal Processing Applications (ESPA) Conference**
  - Held in 2012
  - Consider to hold again in 2015

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WIKI Project (Douglas Williams)

- Wikipedia has become one of the most widely-used resources on signal processing
  - Nyquist–Shannon sampling theorem page is viewed on average 1000x a day
  - Editing of a Wikipedia article can easily exceed the impact and visibility of writing a paper

Wikipedia Workshop at ICASSP

- Friday, May 31 at 12:30 pm in room 118, immediately follows special session SS-L8, "Signal Processing Education in the Internet Age" (same room)

- Workshop offers a primer on how one can meaningfully contribute to improving SP articles on Wikipedia

- Discuss an action plan of a "Wiki project on Signal Processing" with volunteers working together to improve SP articles on Wikipedia: http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Signal_Processing
  - Please bring laptop with internet connection if possible
  - Participants should think of specific (types of) articles that may require improvement and articles they could help to improve

The Big Five IEEE Societies

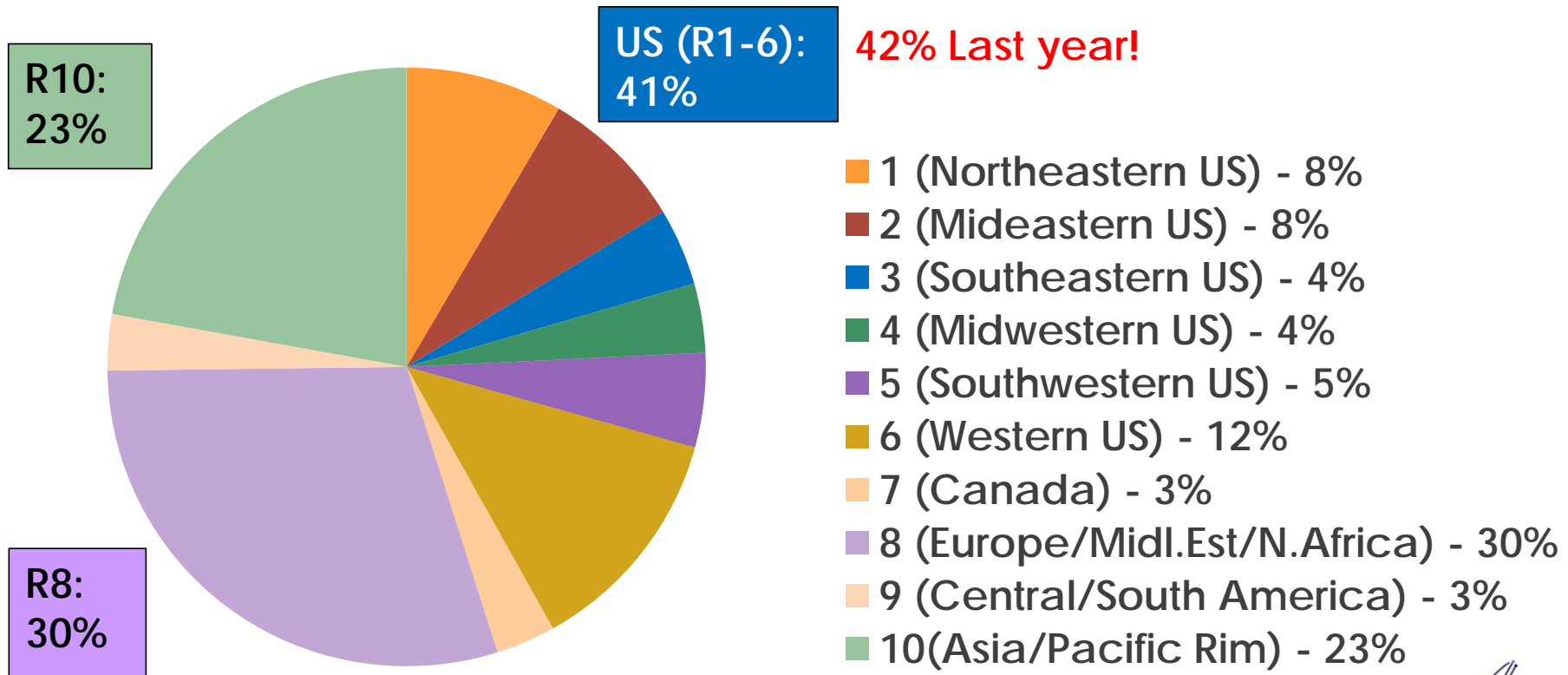|	Members	Undergrad Students	All (with Affiliates)
Computer	50,481	4,258	67,848
ComSoc	44,305	5,298	50,702
Power	28,019	2,156	30,479
SPS	16,326	454	16,957
Microwave	11,537	355	11,939

- Reversed the downward trend and started to grow!
- SPS is the largest society without its own division!

(Dec 2012 data)

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SPS Members by Region

- 4th largest technical society in the IEEE
- Approximately 17,000 members

R10: 23%

US (R1-6): 41% 42% Last year!

R8: 30%

- ■ 1 (Northeastern US) - 8%
- ■ 2 (Mideastern US) - 8%
- ■ 3 (Southeastern US) - 4%
- ■ 4 (Midwestern US) - 4%
- ■ 5 (Southwestern US) - 5%
- ■ 6 (Western US) - 12%
- ■ 7 (Canada) - 3%
- ■ 8 (Europe/Midl.Est/N.Africa) - 30%
- ■ 9 (Central/South America) - 3%
- ■ 10(Asia/Pacific Rim) - 23%

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SPS Publications: Page Budgets

Year	Pages
1967	202
1970	527
1980	773
1990	2,200
2000	3,652
2009	5,080
2012	6,804

Trans. on Audio ➜
Trans. Audio & Electroacoustics ➜
T-ASSP ➜ T-SP

In total, over 19,423 pages published in 2012!

Other SPS Pubs in 2012	Pages
Trans. on Audio, Speech and Lang. Proc. (since 1993)	2,796
Trans. on Image Proc. (since 1992)	4,924
Trans. on Info. Forensics and Security (since 2006)	1,967
SP Letters (since 1994)	964
Journal of Selected Topics in SP (since 2007)	1,032
SP Magazine (since 1984)	936

Published Pages (1994-2012)
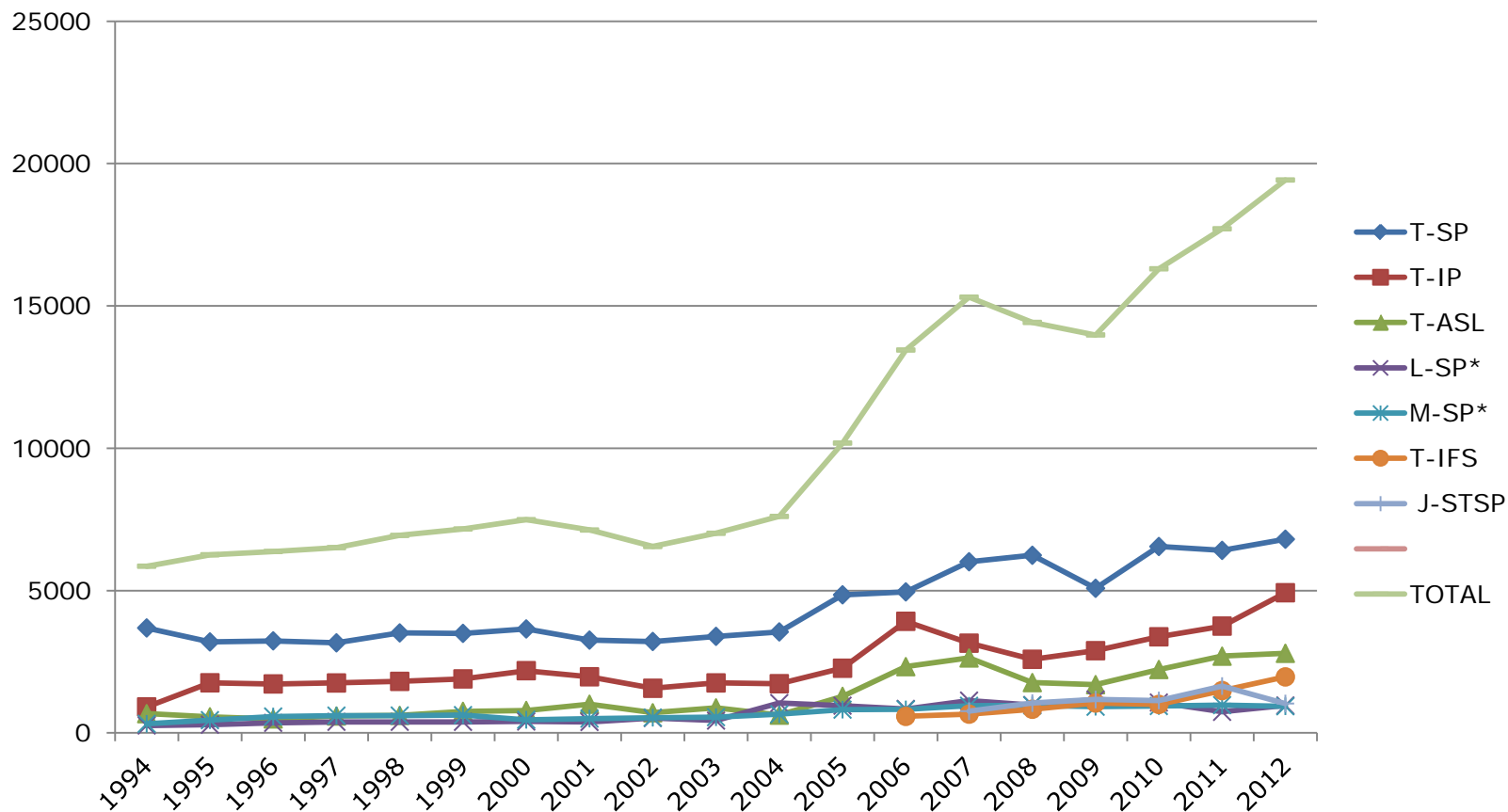
SPS Publications

	Impact factor	Year 2012 Ranking
Signal Processing Magazine	4.066	9/245 in EE
Trans. on Medical Imaging	3.643	12
Trans. on Image Processing	3.042	16
Journal of Selected Topics on SP	2.880	21
Trans. on Signal Processing	2.628	28
Trans. on Wireless Comm.	2.575	29
Trans. on Mobile Computing	2.283	16 (CS-Info Sys)
Trans. on Multimedia	1.935	7 (CS-Software Engr.)
Trans. on Audio/Speech/Lang.	1.498	80
Signal Processing Letters	1.388	91
Trans. Info Forensics and Security	1.340	97

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SPS Conferences
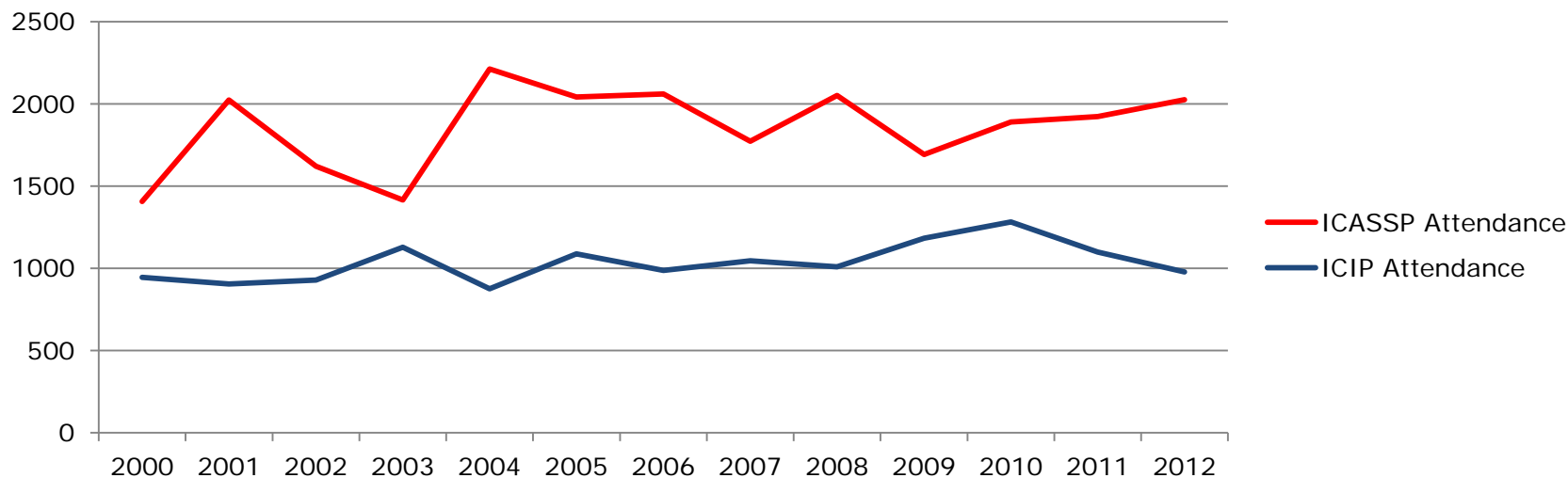
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP):

- Florence – 2014
- Brisbane – 2015
- Shanghai – 2016
- News Orleans, LA - 2017

IEEE International Conference on Image Processing (ICIP):

- Melbourne – 2013
- Paris – 2014
- Quebec City – 2015
- Phoenix – 2016
- Beijing, China - 2017

ICASSP and ICIP Attendance

Year	ICASSP Locations	ICIP Locations
2000	Istanbul, Turkey	Vancouver, Canada
2001	Salt Lake City, UT	Thessaloniki, Greece
2002	Orlando, FL	Rochester, NY
2003	Hong Kong	Barcelona, Spain
2004	Montreal, Canada	Singapore
2005	Philadelphia, PA	Genova, Italy
2006	Toulouse, France	Atlanta, GA
2007	Honolulu, Hawaii	San Antonio, TX
2008	Las Vegas, NV	San Deigo, CA
2009	Taipei, Taiwan	Cairo, Egypt
2010	Dallas, Texas	Hong Kong
2011	Prague, Czech Republic	Brussels
2012	Kyoto, Japan	Orlando, FL

Updated: 5/2013

GlobalSIP: A New Flagship (Ahmed Tewfik)

- New symposia based conference
  - Focused on current and emerging sig. proc. theoretical foundations and applications
- **Goals**: Emphasize interdisciplinary research with promising impact
  - Attract new audiences beyond ICASSP/ICIP/ISBI/ICME
- Launch: Austin, TX, 3-5 December 2013
  - http://www.ieeeglobalsip.org/
- Eighteen symposia:
  - **Theoretical foundations**: graph signal processing, network sensing, low dimensional models, sensing and inference, network theory
  - **Applications**: bioinformatics, neural engineering, mobile imaging, cyber security, finance, cognitive radio, green communications, smart grid, millimeter wave imaging

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Technical Committees: Then and Now

Year 1976
- Digital signal processing
- Digital measurement of noise
- Electroacoustic transducers
- Speech processing
- Underwater acoustics

Year 1987
- Audio and electroacoustics
- Digital signal processing
- Multidimensional signal processing
- Spectral estimation and modeling
- Speech processing
- Underwater acoustics
- VLSI for signal processing

➔ Evolved and Broadened Scope of Signal Processing

Year 2013
- Audio and electroacoustics
- Bio imaging and signal processing
- Design and implementation of signal processing and systems
- Image, video, and multidimensional signal processing
- Information forensics and security
- Machine learning for SP
- Multimedia SP
- Sensor array and multichannel
- SP for communication and networking
- SP theory and methods
- Speech and language processing

- Industry DSP technology
- Signal processing education

TCs and Affiliated Community

TC	ICASSP 2013 Submissions	ICASSP % of Submissions	Affiliates	Affi (%)	Affi/Sub
AASP	354	10.6%	72	7.2%	0.69
BISP	164	4.9%	36	3.6%	0.73
DISPS	100	3.0%	47	4.7%	1.57
IFS	93	2.8%	102	10.3%	3.68
IVMSP	479	14.3%	125	12.6%	0.88
IDSP	33	1%	8	0.8%	0.8
MMSP	74	2.2%	137	13.8%	6.27
MLSP	196	5.9%	77	7.8%	1.32
SAM	217	6.5%	86	8.7%	1.34
SL	764	22.8%	63	6.4%	0.28
SPCOM	387	11.6%	168	17.0%	1.47
SPTM	479	14.3%	70	7.0%	0.49
Total	3346		882		

TC Competitions (Charles bouman)

- For researchers, graduate students, engineers, etc. to focus on recognized technical challenges

- **The Goals**:
  - Identify topics that will broaden the scope and energize or re-energize Technical Committees
  - Encourage our members to explore these topics together
  - Attract new members outside the SP community to the Technical Committees and Society

- **Get engaged**:
  - One TC Competition was held in 2012 by the MLSP TC.
  - Three TC Competitions are planned or on-going for 2013 by the BISP, IFS, and MMSP TCs

SPS Chapters

38 Chapters

8 Chapters

50 Chapters

30 Chapters

9 Chapters

■ Regions 1-6
■ Region 7
■ Region 8
■ Region 9
■ Region 10

There are about 135 SPS chapters worldwide.

Challenges Ahead

- **Publication**
  - Reducing revenues due to IEL distribution
  - Further improve quality, impact factors
  - TSP/TIP too thick? More new topical journals?

- **Membership**
  - Create more values and benefits
  - Outreach to emerging regions

- **Finance**
  - More services and programs – more expenses!
  - Create more new products and models?

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Challenges Ahead

- **Conference:**
    - How to support regional activities?
    - Balance between US and international

- **Technical Activities:**
    - Build a strong sense of community in TCs
    - Timely embrace new emerging topics

- Foresee the future and position ahead!

Volunteering Opportunities

- Review papers for journals/conferences

- Become part of the editorial boards

  (appointed by Journal's editors-in-chief; vetted by Pub Bd)

- Organize conferences and seasonal schools

- Propose tutorials for online education program

- Get involved in technical committees

  - Practically any SPS member and even some non-members can become Affiliate Members (non-elected, non-voting members) of a particular TC

- Volunteer for elected leadership positions

- …

Where to Find This Talk?

■ Go to IEEE Signal Processing Society at
http://www.signalprocessingsociety.org/

  – Under "About SPS", see "State of the Society"

■ SPS website is now faster...!

What Can We Do for You?

- **President**:   K. J. Ray Liu
- **President-Elect**: Alex Acero
- **Vice President-Awards and Membership**: John Treichler
- **Vice President-Conferences**: Wan-Chi Siu
- **Vice President-Finance**: Alex Kot
- **Vice President-Publications**: Mari Ostendorf
- **Vice President-Technical Directions**: Charles Bouman