

State of the Society

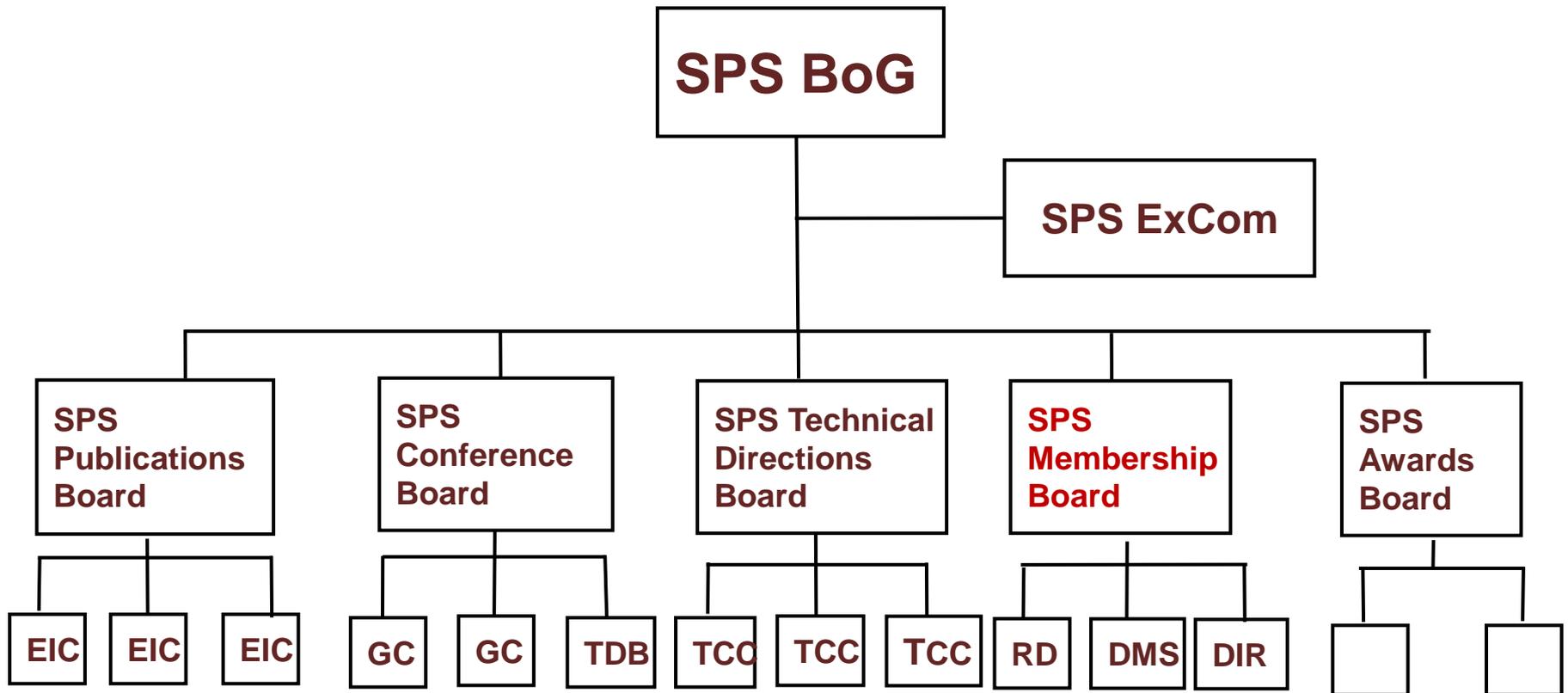
March 2012

K. J. Ray Liu, President

IEEE Signal Processing Society

International Conference on Acoustics, Speech,
and Signal Processing (ICASSP'12), Kyoto, Japan

IEEE Signal Processing Society (SPS) Organizational View



SPS as the First IEEE Society *

Early History of **Society 001**

- **1948** began as the IRE Professional Group on Audio
- 1953 IRE Transactions on Audio
- 1963 IEEE formed from IRE and AIEE, Professional Group on Audio becomes part of the IEEE
- 1965 renamed the Group on Audio and Electroacoustics
IEEE Transactions on Audio and Electroacoustics
- 1974 renamed Acoustics, Speech and Signal Processing Group
- **1976** first IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
- **1984** first publication of IEEE ASSP Magazine

* *Sixty Years of Signal Processing, May 2008*

SPS as the First IEEE Society *

Later History of **Society 001**

- 1991 IEEE ASSP Magazine becomes IEEE Signal Processing Magazine
- 1991 IEEE Transactions on ASSP becomes **IEEE Transactions on Signal Processing**
- **1992** ASSP Society becomes the **Signal Processing Society**
- 1992 first publication of IEEE Trans. on Image Processing
- 1993 first publication of IEEE Trans. on Speech and Audio Processing
- 1993 Society Executive Office established
- 1994 first publication of IEEE Signal Processing Letters
- 1994 first International Conf. on Image Processing (ICIP)
- 2005 first publication of IEEE Trans. on Information Forensics and Security
- 2006 launch of IEEE Journal of Selected Topics in Signal Processing

IEEE SPS Field of Interest

Signal processing is the **enabling technology for the generation, transformation, extraction, and interpretation of **information**.**

It comprises the theory, algorithms with associated architectures and implementations, and applications related to processing information contained in many different formats broadly designated as signals.

Signal processing uses mathematical, statistical, computational, heuristic, and/or linguistic representations, formalisms, modeling techniques and algorithms for generating, transforming, transmitting, and learning from signals.

(Approved by TAB in 2010)

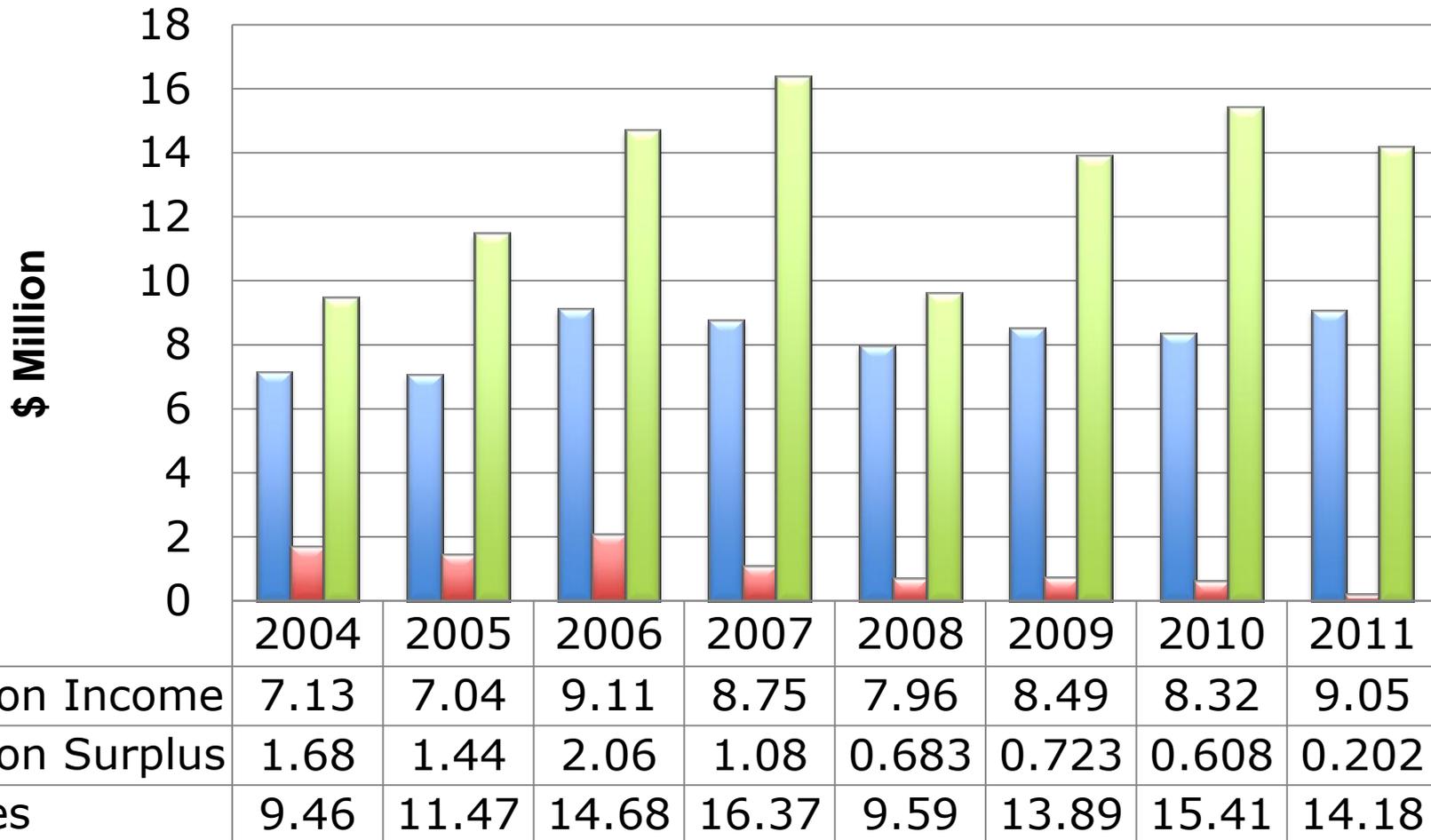
IEEE SPS Mission Statement

The Signal Processing Society is an international organization whose purpose is to:

- **advance and disseminate** state-of-the-art scientific information and resources
- **educate** the signal processing community
- **provide a venue** for people to interact and exchange ideas

(Adopted by SPS Board of Governors 11 September 2003)

SPS Budget and Finance



SPS Finance: Revenue Streams

Products/Services + IEEE investment income

■ Periodicals

- Transactions (5 solely owned + 6 co-sponsored)
- SP Magazine augmented by e-newsletter
- SP Letters (1)

■ Meetings

- Conferences (2 solely owned + 2 co-sponsored)
- Workshops (15 solely owned + 5 co-sponsored)

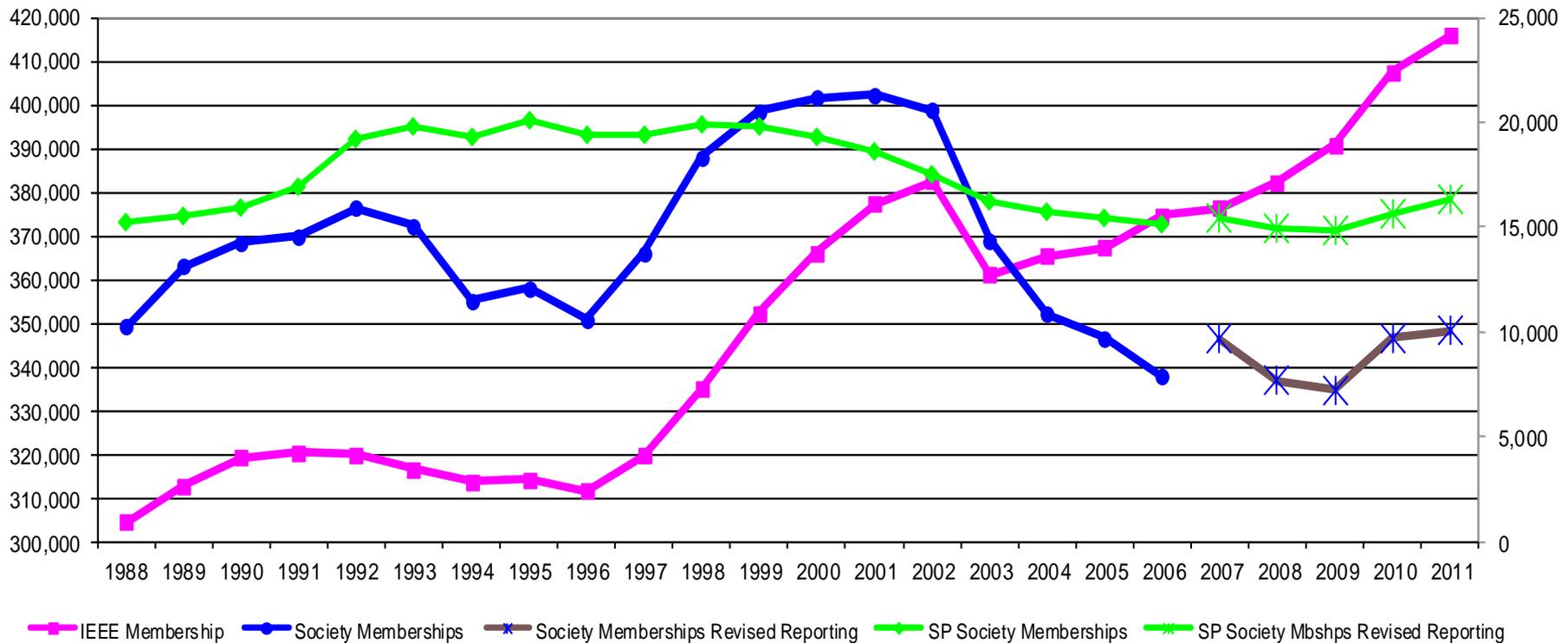
■ SP Electronic Library (SPEL)

SPS Finance: Expense Streams

- Providing services to larger community
 - SPS Distinguished Lecture Program & IEEE History Center
 - SPS sponsorship of Society and IEEE awards
 - SPS web pages and publicity
 - Tools/services to streamline conf and pub operations
- Funding SPS initiatives
 - New initiatives: SP cup/challenge, summer schools, etc
 - Expanding our membership
- Operational and administrative expenses
 - SPS Staff Office
 - Travel assistance for volunteers on major Boards
- IEEE and TAB Infrastructure costs

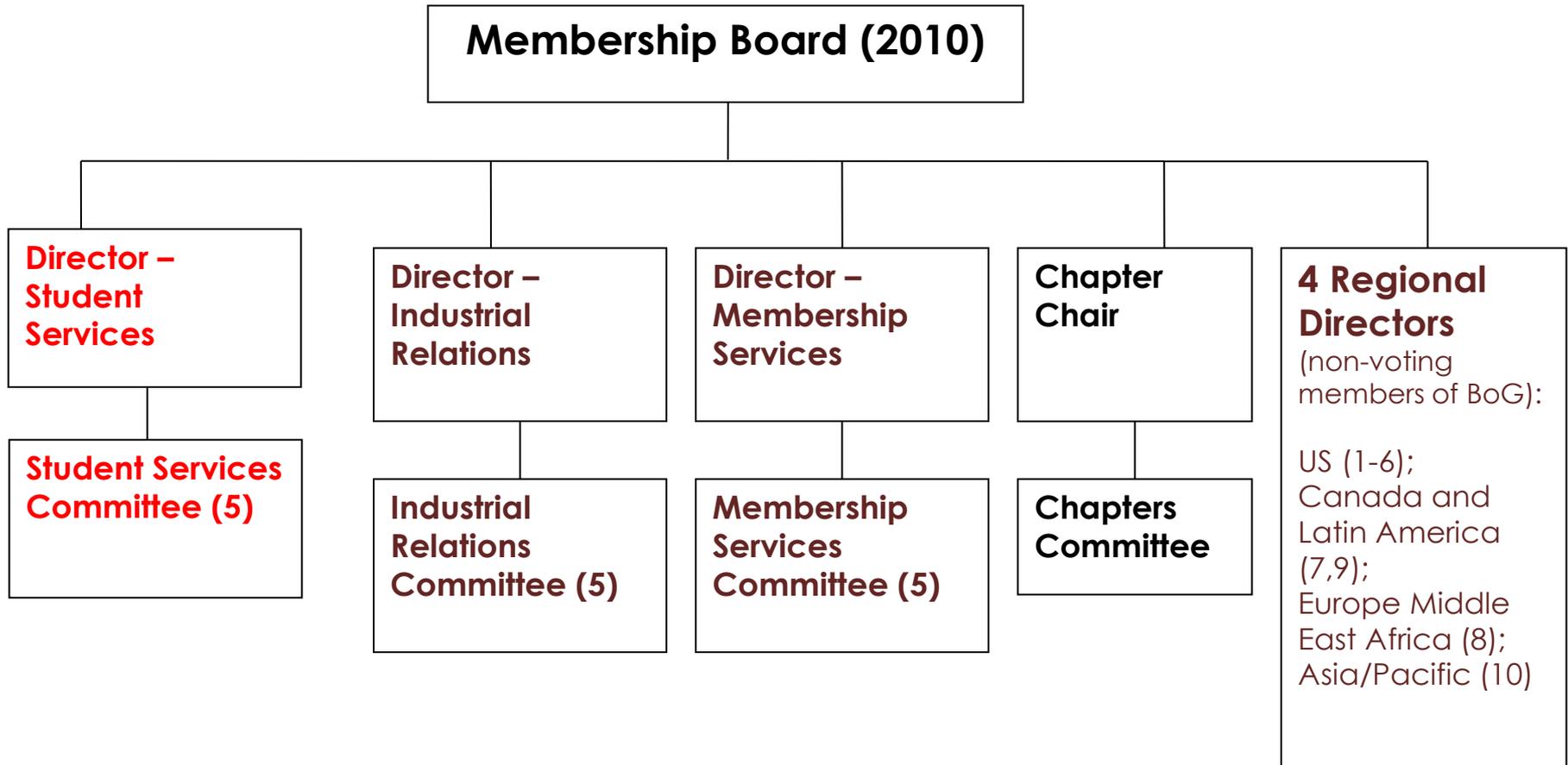
Memberships: Long Term Trends

IEEE/Total Society Memberships/SP Society (Dec. 1988-2011)



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.

SPS Membership Board



Recent Initiatives

- Create Chapter of the Year Award
- Develop Seasonal (summer/winter) Schools
- Create Director of Student Relations
- Student travel grant becomes regular budget
- Start ESPA – an industrial oriented conference
- Provide regular associate editor training in ICASSP/ICIP
- Reduced Membership Fees via E-membership
- Broaden travel support of volunteers in major boards
- Develop online tutorials/educational program
- Create “Signal Processing Cup” or “Grand Challenge”

Benefits of SPS Membership

- **FREE** subscription of IEEE Signal Processing Magazine in print or electronic forms.
- **FREE** electronic access to ALL seven of the Society's publications;
- **FREE** monthly print and electronic issues of the Content Gazette, a catalog that allows you to browse the tables of contents of all the Society's publications.
- **FREE** monthly electronic issues of the Inside Signal Processing eNewsletter.
- **Additional discounts** to Society's conferences/workshops.
- May qualify for travel grants to conferences.

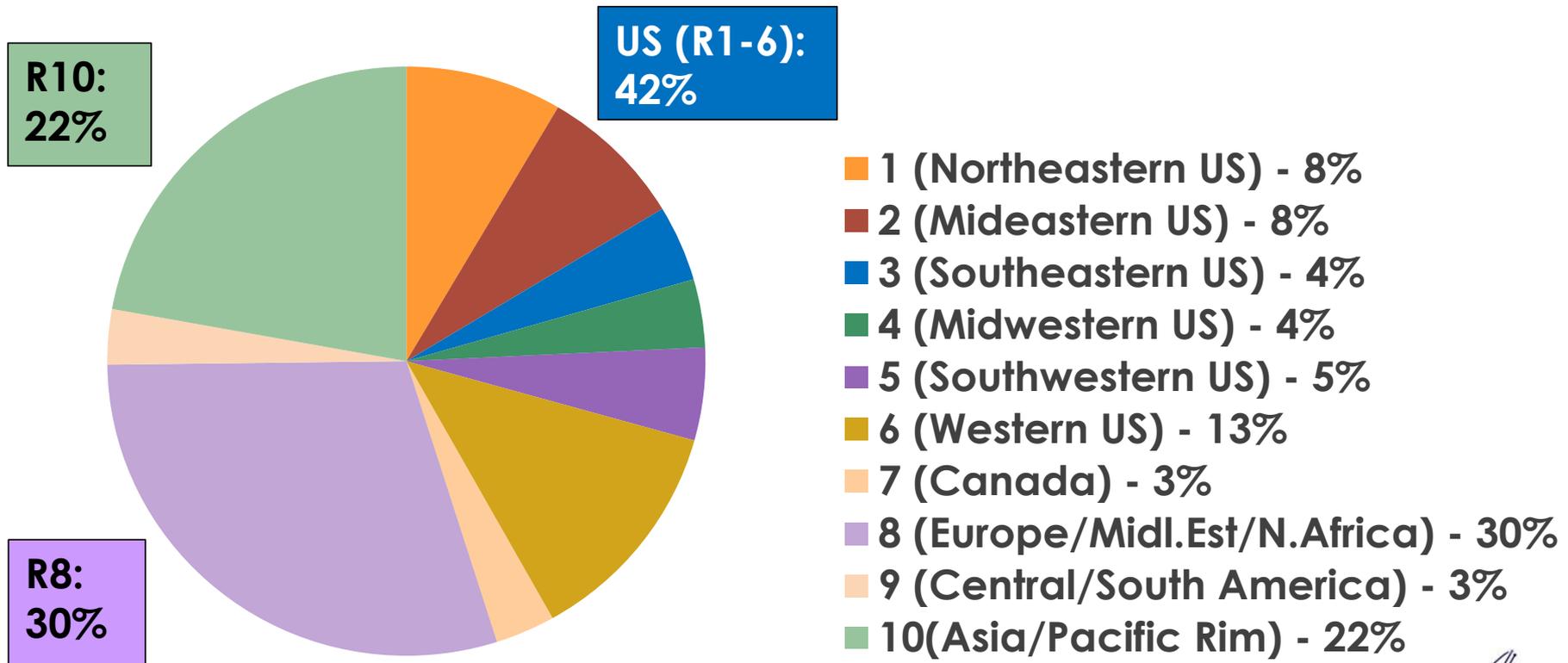
The Big Five

	Members	Students	All (with Affiliates)
Computer	52,202	4,447	71,895
ComSoc	44,870	4,882	51,155
Power	26,629	2,488	29,410
SPS	15,726	451	16,371
Microwave	11,560	514	12,129

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

SPS Members by Region

- 4th largest technical society in the IEEE
- Approximately 16,000 members



SPS Publications: Page Budgets

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

Year	Pages
1967	202
1970	527
1980	773
1990	2,200
2000	3,652
2009	5,080
2010	6,548

In total, over **16,000** pages published in 2010!

Other SPS Pubs in 2010	Pages
Trans. on Audio, Speech and Lang. Proc. (since 1993)	2,228
Trans. on Image Proc. (since 1992)	3,376
Trans. on Info. Forensics and Security (since 2006)	1,000
SP Letters (since 1994)	1,067
Journal of Selected Topics in SP (since 2007)	1,140
SP Magazine (since 1984)	944

SPS Publications

	Impact factor	Ranking
Signal Processing Magazine	6.00	1st/247 in EE
Trans. on Medical Imaging	3.639	7
Trans. on Image Processing	2.918	13
Trans. on Signal Processing	2.651	20
Journal of Selected Topics on SP	2.647	21
Trans. on Mobile Computing	2.381	15 in CS
Trans. on Wireless Comm.	2.152	42
Trans. Info Forensics and Security	1.826	54
Trans. on Multimedia	1.790	33 in CS
Trans. on Audio/Speech/Lang.	1.668	62
Signal Processing Letters	1.165	107

SPS Conferences

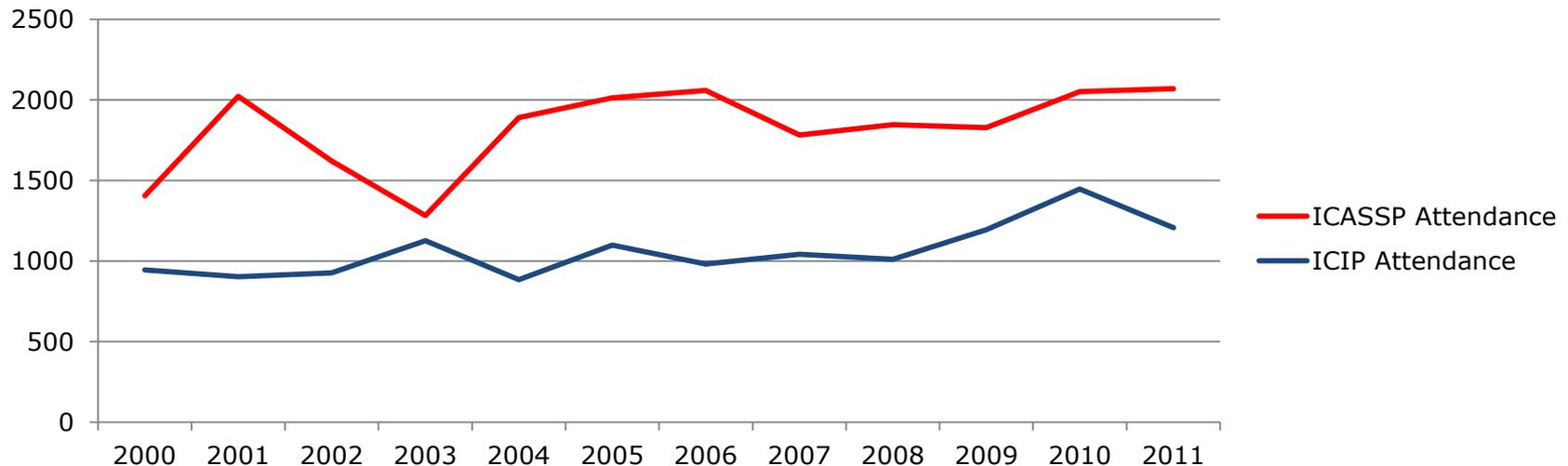
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP):

- Vancouver – 2013
- Florence – 2014
- Brisbane – 2015
- Shanghai – 2016

IEEE International Conference on Image Processing (ICIP):

- Orlando – 2012
- Melbourne – 2013
- Paris – 2014
- Quebec City – 2015
- Phoenix – 2016

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

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 2011

- 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

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 (proposing)

- Society Award
- Technical Achievement Award
- Education Award
- Meritorious Service Award
- Best Paper Award
- Signal Processing Magazine Best Paper Award
- Signal Processing Magazine Best Column Award
- Young Author Best Paper Award

SPS Chapters



There are about 134 SPS chapters worldwide.

Challenges Ahead

■ **Publication**

- Open access – opportunity or danger?
- Reducing revenues due to IEL distribution
- Further improve quality, impact factors

■ **Membership**

- Create more values and benefits
- Outreach to emerging regions

■ **Finance**

- More services and programs – more expenses
- Create more new products and models

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
- **Organizational Structure:** time to review
- 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 PubBd)
- Organize conferences and seasonal schools
- Propose tutorials for conferences
- 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 Technical Committee
- Volunteer for elected leadership positions
- ...

What Can We Do for You?

- **President:** Ray Liu
- **President-Elect:** Alex Acero
- **Vice President-Awards and Membership:** John Treichler
- **Vice President-Conferences:** Wan-Chi Siu
- **Vice President-Finance:** Min Wu
- **Vice President-Publications:** Mari Ostendorf
- **Vice President-Technical Directions:** Ahmed Tewfik

