

# SIGNAL PROCESSING

The Science Behind our Digital Life

1

**Ali H. Sayed, *President***  
**IEEE Signal Processing Society**



IEEE International Conference on Acoustics, Speech,  
and Signal Processing (ICASSP), Calgary, Canada, April 2018



# Thank you ICASSP 2018

2

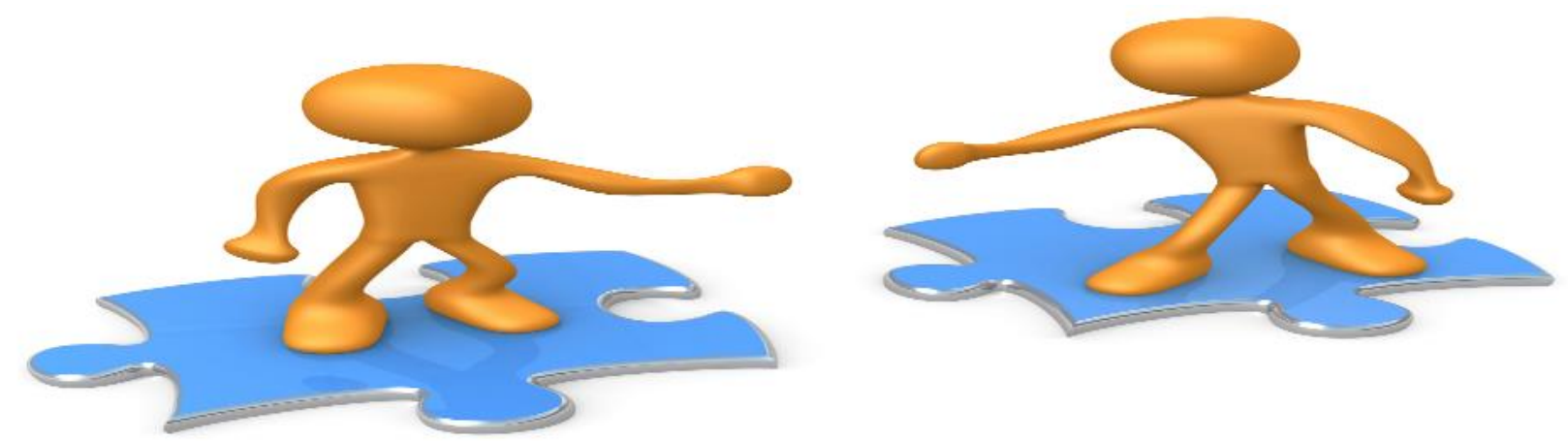
IEEE SIGNAL PROCESSING SOCIETY



General co-Chairs and their Program Committee:  
**Hanseok Ko, *Korea University***  
**Monson Hayes, *George Mason Univ.***



# Student Support



3

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The Society will be sharing cost savings from ICASSP 2018 with our **student membership**:

- ❑ Society student members will be refunded the early registration fee of **US\$250**.
- ❑ Due to the relocation of ICASSP, we will be making a contribution to the **Seoul Signal Processing Chapter**.



1

# Is this your first ICASSP?

1) YES

2) NO



1

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# 70<sup>TH</sup> Anniversary

**1948:** Founded as the **Professional Group on Audio** of the Institute of Radio Engineers (IRE).

**1963:** IRE and the **American Institute of Electrical Engineers** morphed into the Institute of Electrical and Electronics Engineers (IEEE).



# 70<sup>TH</sup> Anniversary

7

IEEE SIGNAL PROCESSING SOCIETY

- We were the first IEEE Society!
- Today: **16.4K members** and **194** chapters worldwide.

Former Society President **Jose Moura**  
(2008-2009) will serve as IEEE President  
in 2019.

*Congratulations*



# Executive Committee



**Ali H. Sayed, *President***

**Ahmed Tewfik, *President-Elect***



**Walter Kellermann, *VP-Technical Directions***

**Fernando Pereira, *Vice President-Conferences***

**Nikos Sidiropoulos, *Vice President-Membership***



**Sergios Theodoridis, *Vice President-Publications***

**Rich Baseil, *Executive Director***



# Many Boards and Committees...

9

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Board of Governors

Awards Board

Conferences Board

Publications Board

Membership Board

Technical Directions Board

**Fellows Committee**

**Women in SP Committee**

**Industrial Relations Committee**     *many more volunteers...*

**15 Technical Committees & Special Interest Groups...**





# Society Staff



10

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**Rich Baseil**  
*Executive Director*



**William Colacchio**  
*Senior Manager, Publications*

- **Adrienne Fisher**, *Publications Coordinator*
- **Allison Fleisher**, *Publications Coordinator*
- **Kathy Jackson**, *Publications Coordinator*
- **Rebecca Wollman**, *Publications Admin.*

**Theresa Argiropoulos**  
*Senior Manager, Operations*



- **Deborah Blazek**, *Admin, Cmtes & Governance*
- **George Olekson**, *Admin. Asst., Operations*
- **Rupal Bhatt**, *Web Administrator*
- **Jessica Perry**, *Membership & Content, Admin.*
- **Jaqueline Rash**, *Membership Administrator*

**Caroline Johnson**  
*Senior Manager, Conferences*



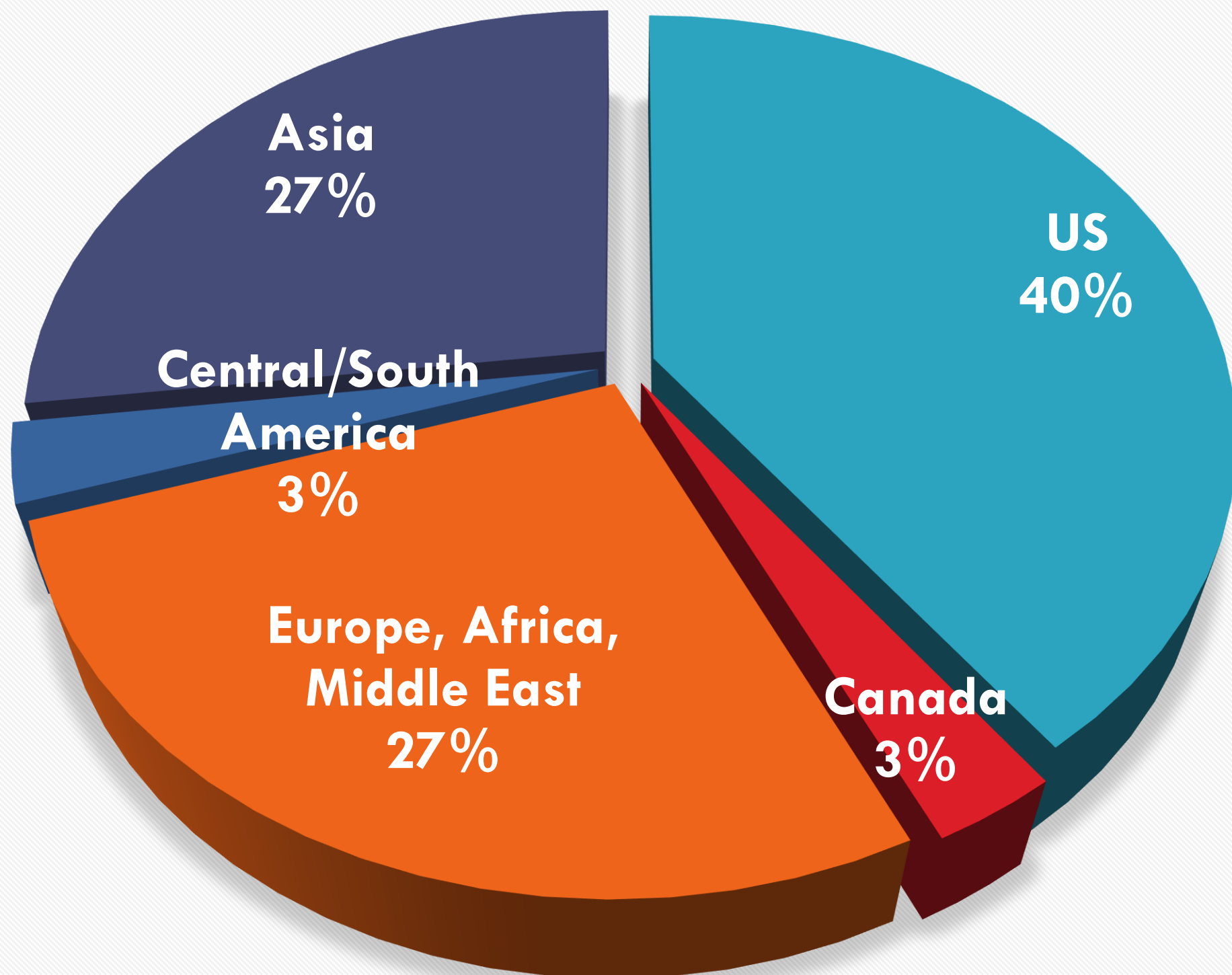
- **Nicole Allen**, *Conference Administrator*
- **Samantha Walter**, *Conference Coordinator*

# Membership Distribution (~16,400)

11

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World Distribution



## Approximately:

**6400** USA (R1-6)

**4500** Asia (R10)

**4500** Europe/Middle East/Africa (R8)

**500** Canada (R7)

**500** Central/South America (R9)



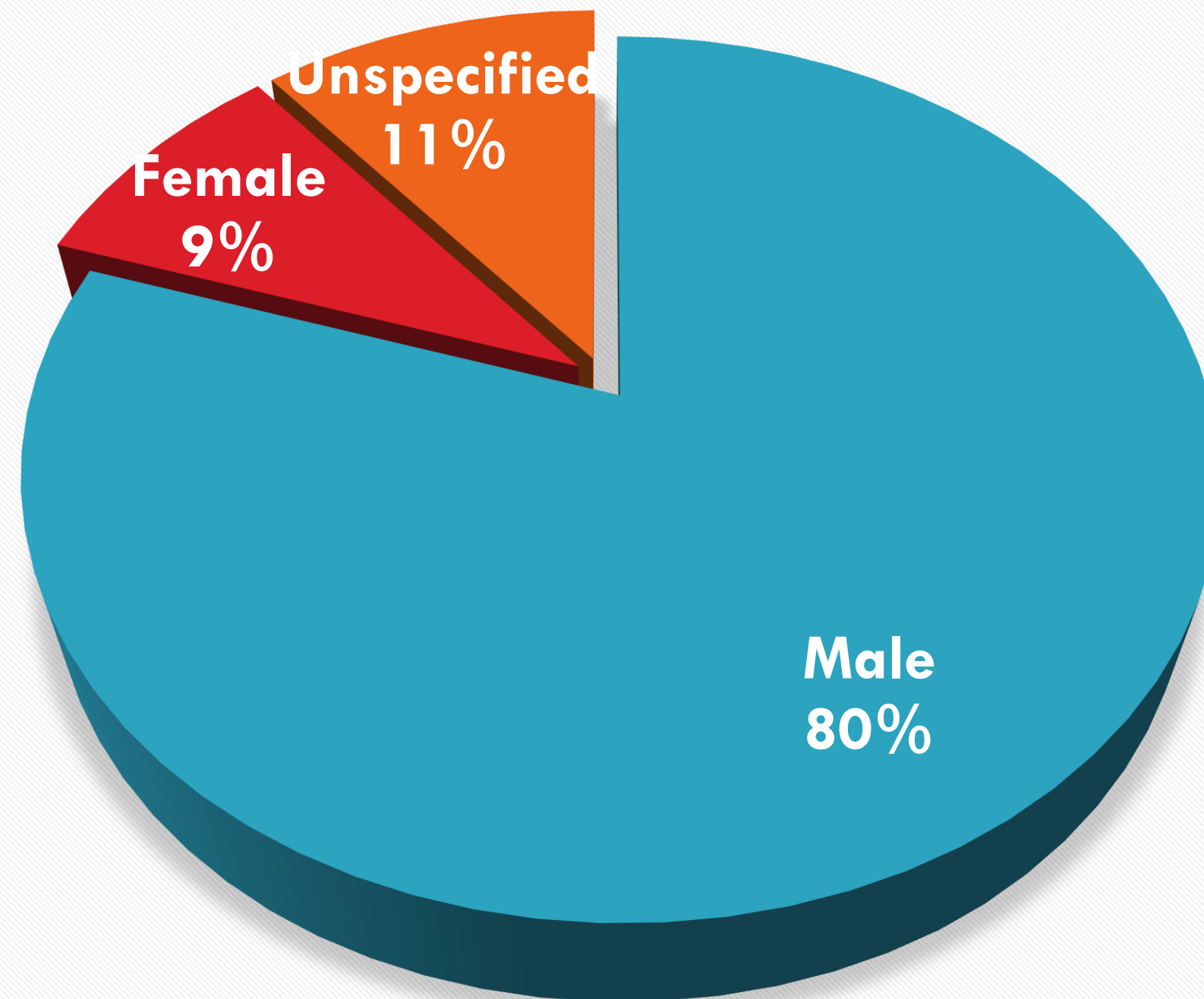
Region	Population	Members	<u>Members</u> Population
Asia (Region 10)	4.4B	4500	p
Central/South America (R9)	464M	500	p
Europe/Middle East/Africa (Region 8)	2B Europe: 741 M Africa: 1.2B Middle East: 218M	4500	2p
Canada (Region 7)	36M	500	14p
USA (Regions 1-6)	325M	6400	20p

# Gender Distribution (~16,400)

13

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Gender Distribution

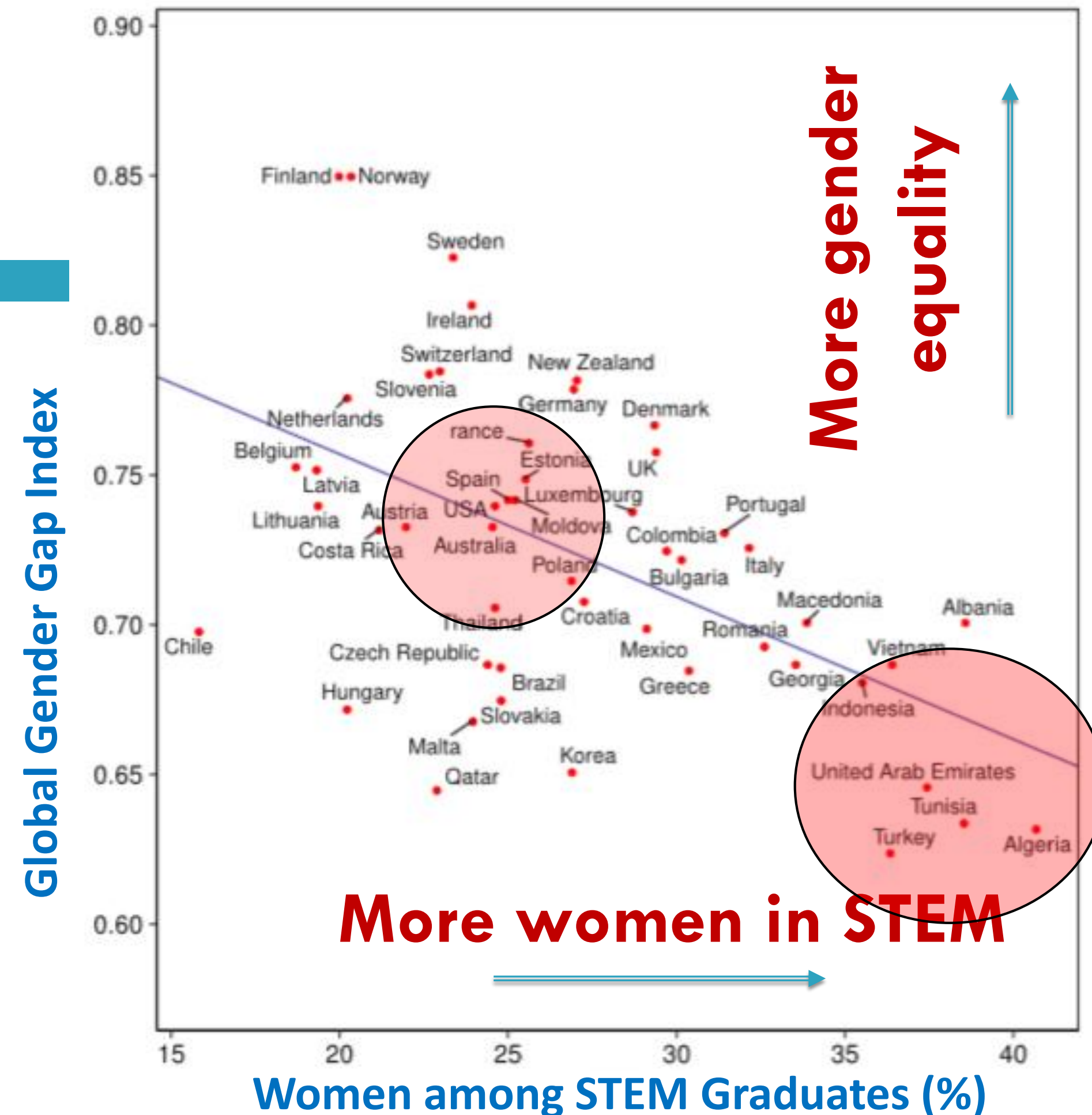


# STEM Fields

14

**STEM:** Science, Technology, Engineering, Mathematics.

**USA:** 17% are women in Electrical Engineering, 25% in STEM fields.



Source: Psychological Science. Online news article by The Atlantic, Feb 18, 2018.



# Women Leader Volunteers...

15

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**Rabab Ward**

Immediate Past President



**Athina Petropulu**

Former VP-Conferences  
Past EiC, IEEE Trans. SP



**Isabel Trancoso**

Past EiC, IEEE Trans. Speech  
Chair, Fellows Committee



**Lina Karam**

Former BOG member  
General Chair, ICIP 2016



**Maria Greco**

Former BoG member  
Chief Editor, Resource Center



**Mari Ostendorf**

Former VP-Publications

and many others...

# Women in Signal Processing Luncheon

16

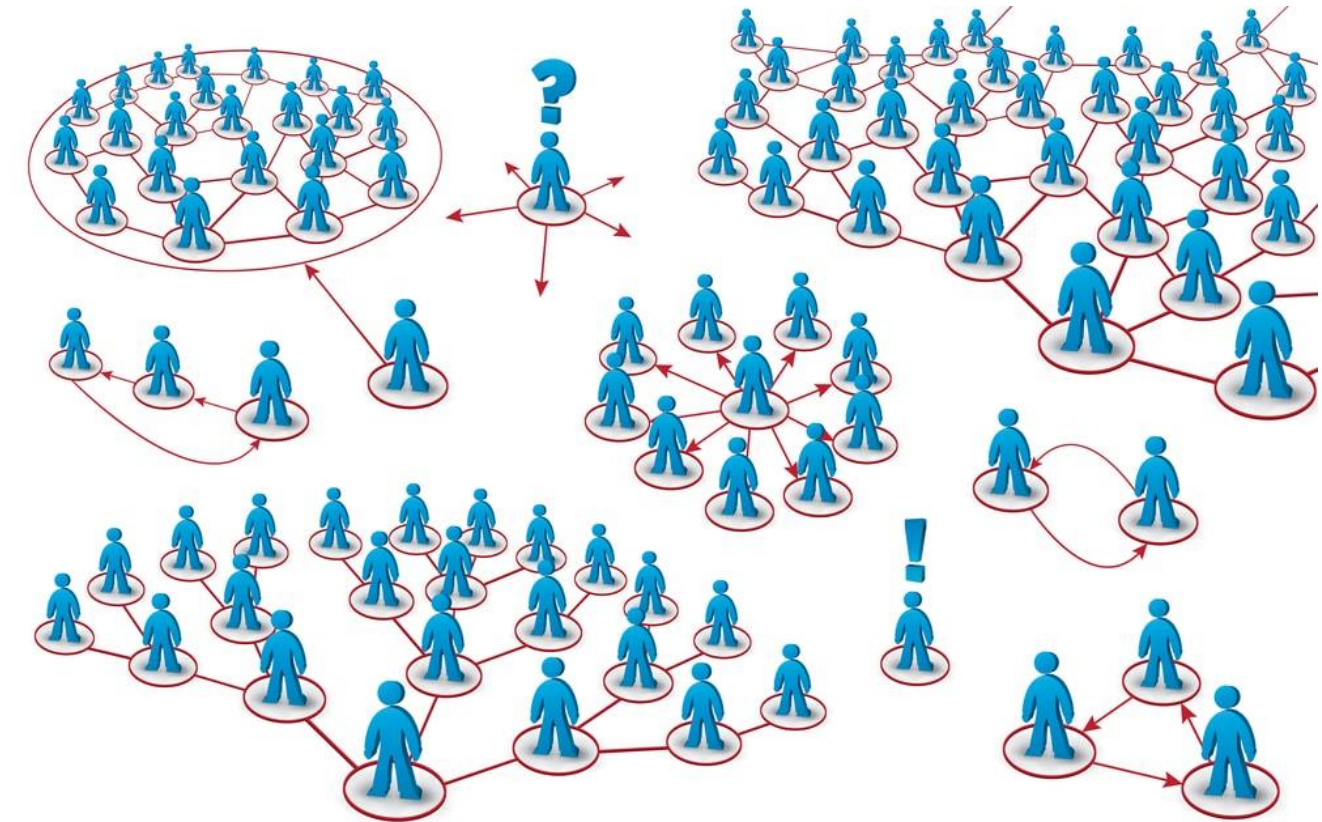
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**Wednesday, April 18, 12:00-14:00**

**Panel discussion: *What is Needed to Become an IEEE Fellow and Beyond.***

Networking opportunities;

Exchange ideas and experiences from academia & industry.





## **Suggestions to increase women membership:**

- 1) Events run by and for women members.**
- 2) Mentorship program for student members.**
- 3) Leadership positions to women members.**
- 4) Society awards to women members.**
- 5) All the above.**





# 2

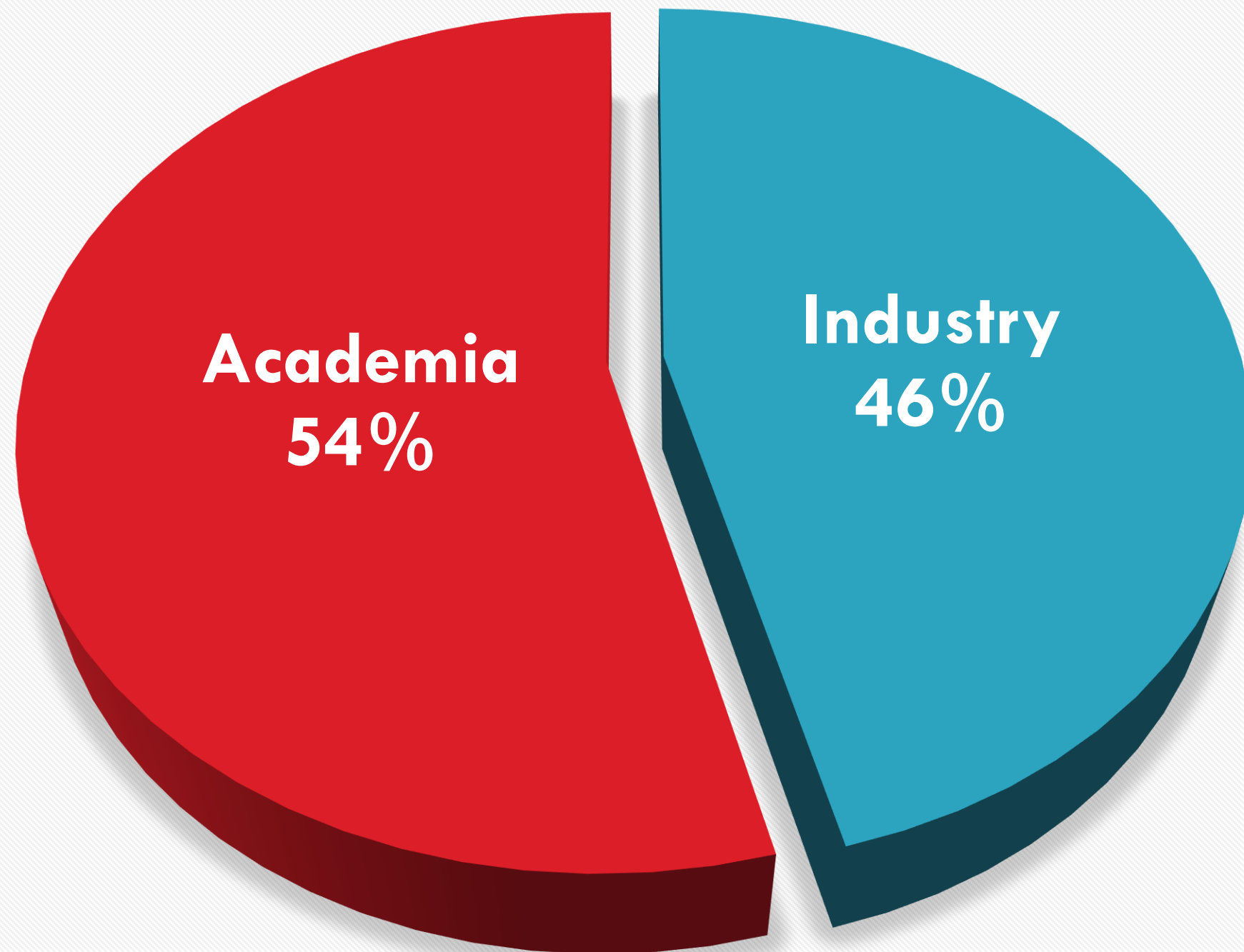
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# Industry Membership

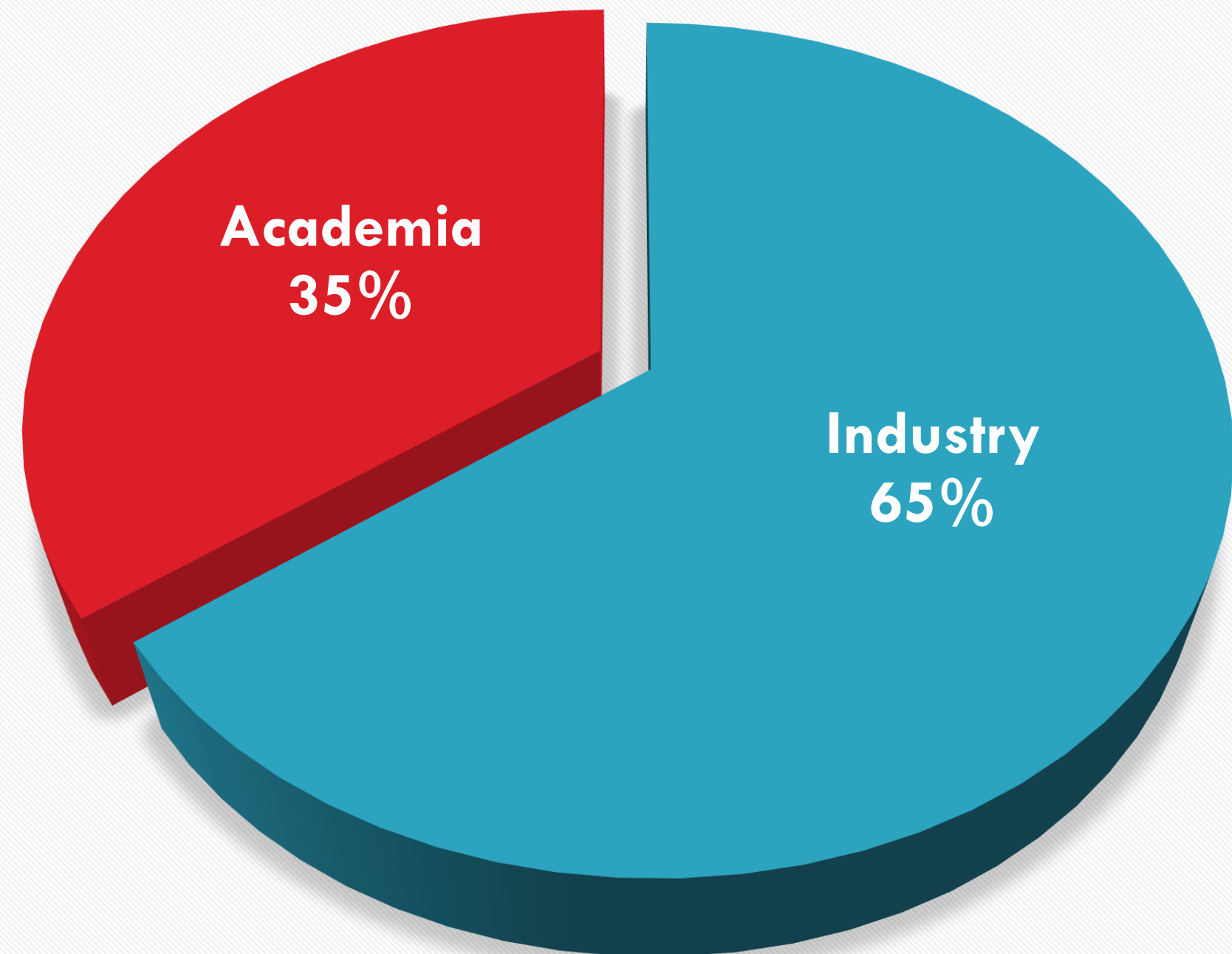
19

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World Distribution



US Distribution





3

**You are:**

- 1) Faculty.**
- 2) Student.**
- 3) Industry professional.**
- 4) Other.**





3

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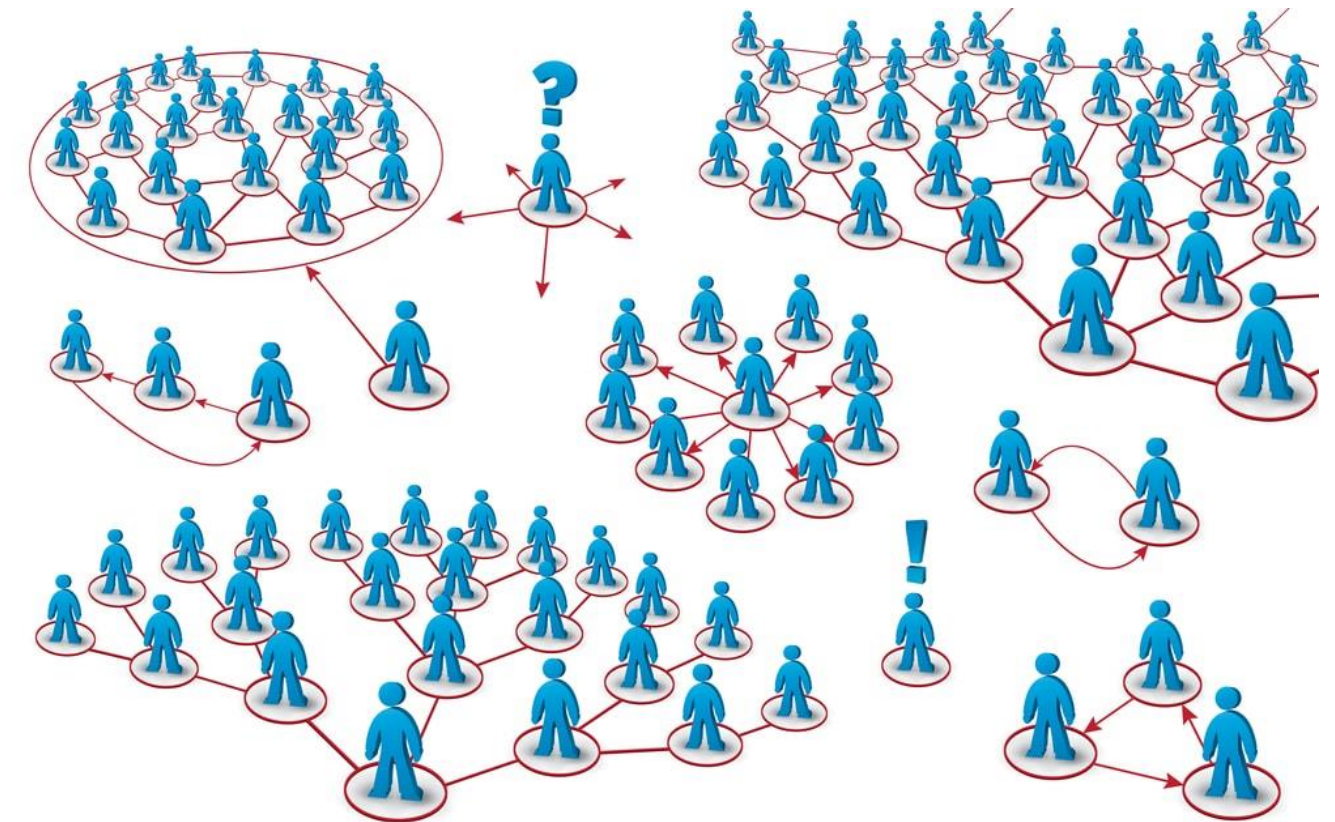
# Young Professionals Reception

22

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**Tuesday, April 17, 17:30-19:30**

Network with your peers and professionals from industry and academia in an informal atmosphere.



# Student Career Luncheon

23

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**Thursday, April 19**

For students and companies to meet.

About 120 students and 16 companies registered to attend the event.



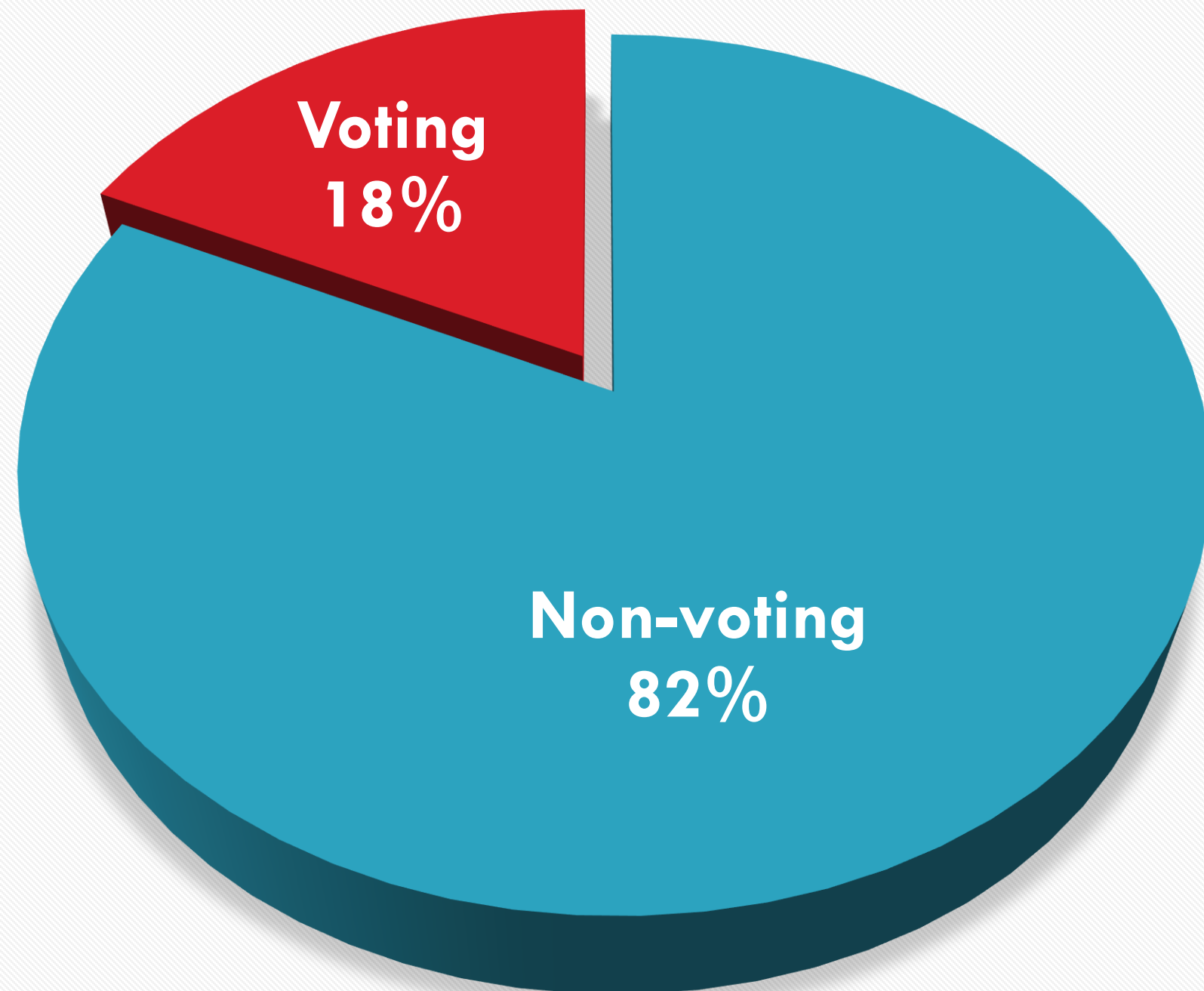


# Voting Members (2017)

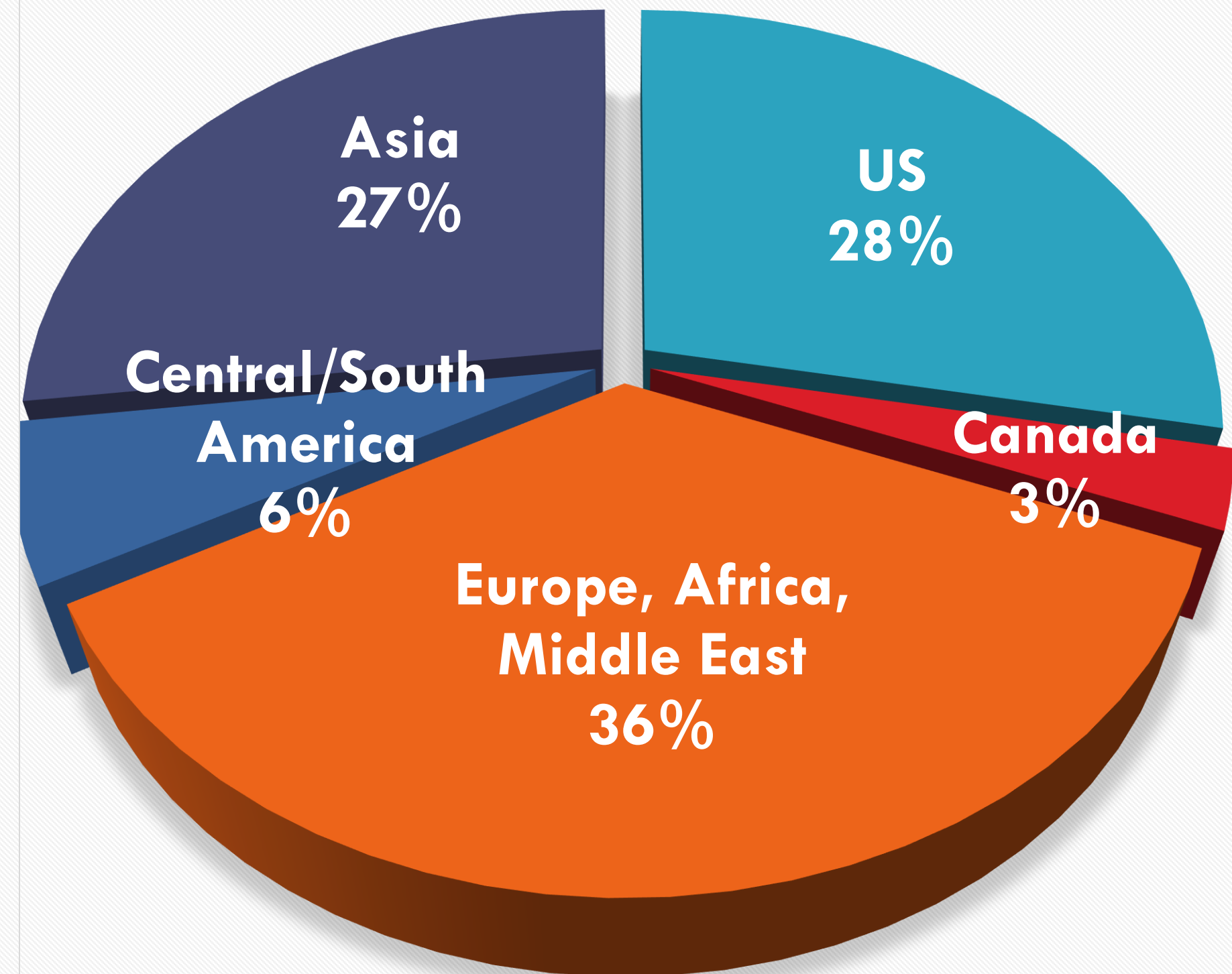
24

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Participation in Elections



Origin of Votes

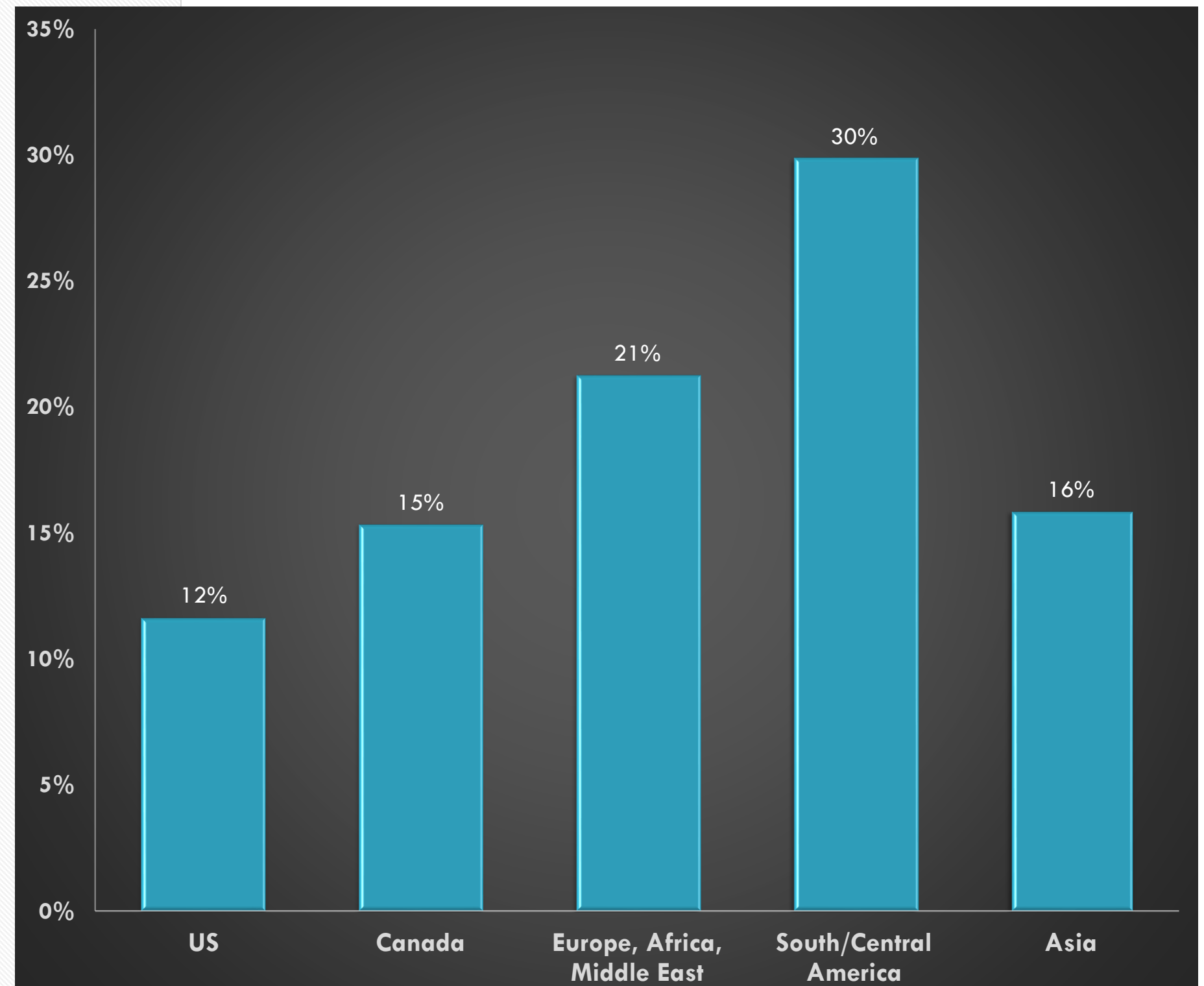


# Level of Engagement in Elections

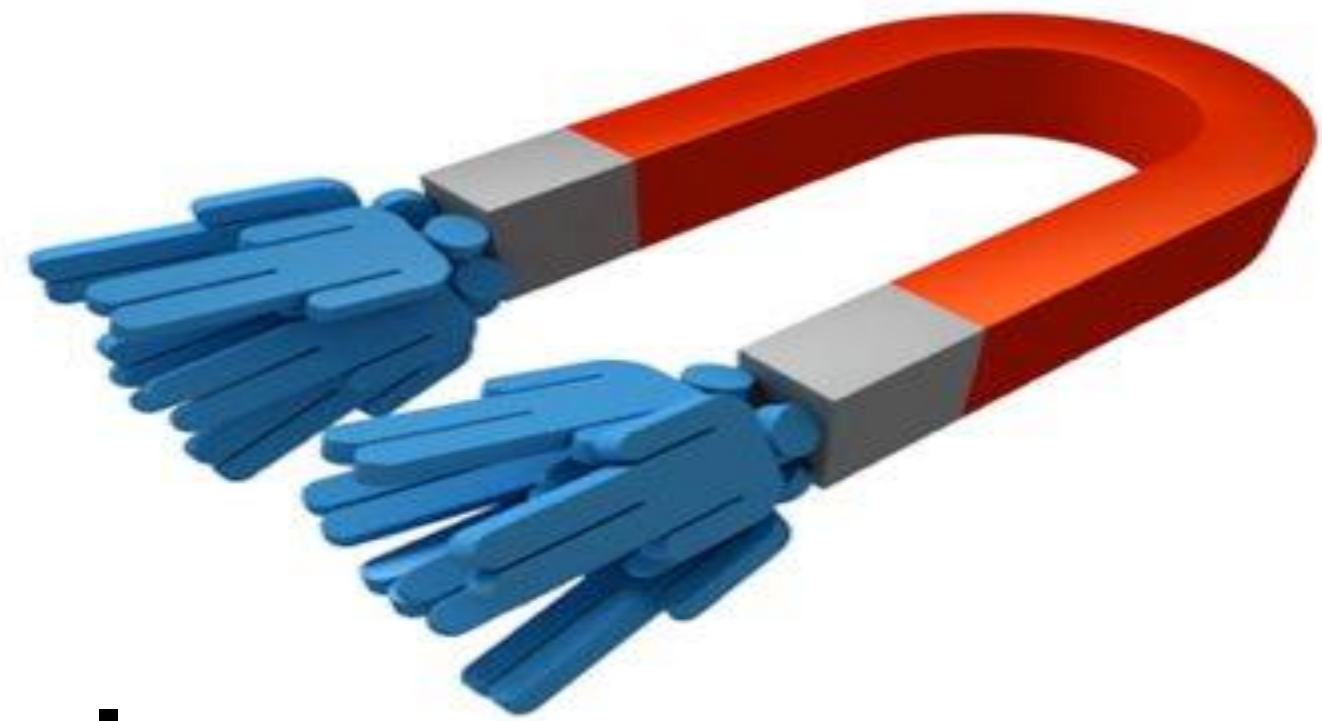
25

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**Percentage of Members  
Participating in Voting  
from each Region**



# Engaging our Members



26

**An Organization remains relevant as long as:**

- Members see nontrivial value in its activities;
- The community sees nontrivial value in its methods.

**We are continually seeking ways to:**

- Engage our members;
- Engage the communities around us.



# Some Goals for our Society

27

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- Embrace **students** more fully.
- Reach out to **industry** more vigorously.
- Expand **educational** opportunities by exploiting the online medium.
- Enrich our publication/conference **experiences**.



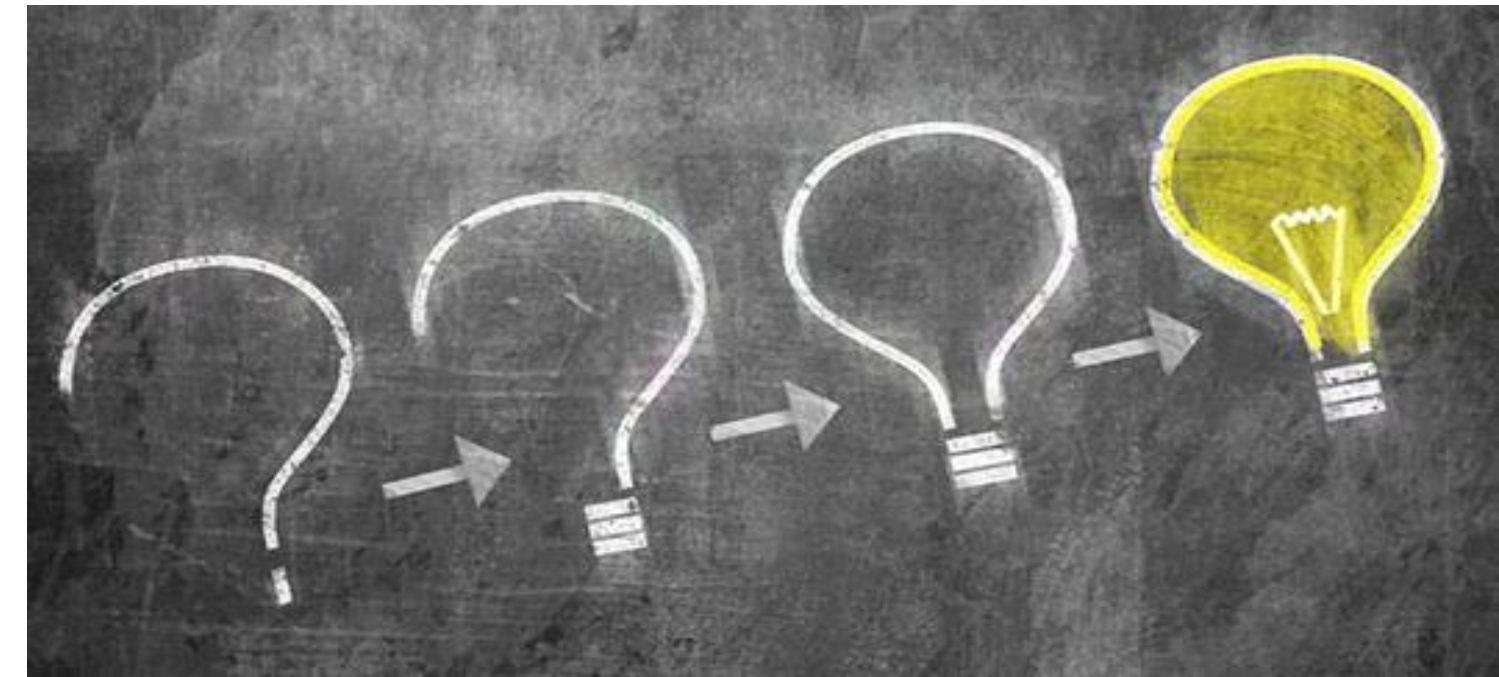
# It is easy to get involved

28

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Suggestions and feedback are always welcome.

> **Volunteers are needed** <



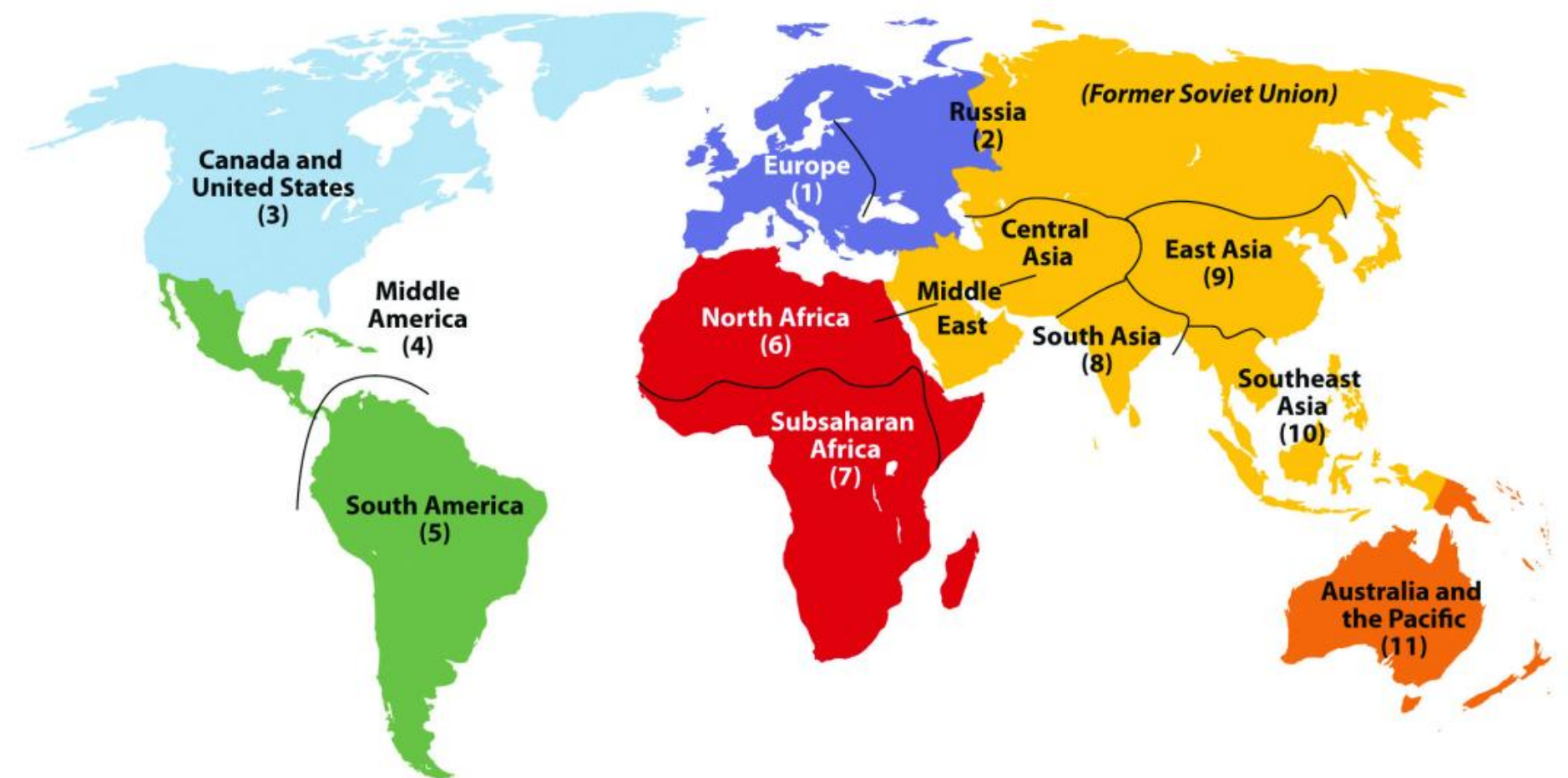
**All our initiatives, including publications and conferences, are run by volunteers like you and me!**

Write to society leaders or to [sps-president@ieee.org](mailto:sps-president@ieee.org)

# The \$1 Student-Membership Society

Starting with the 2019 membership year, student membership in our Society will cost **\$1 annually.**

Tell your students!  
Tell your friends!

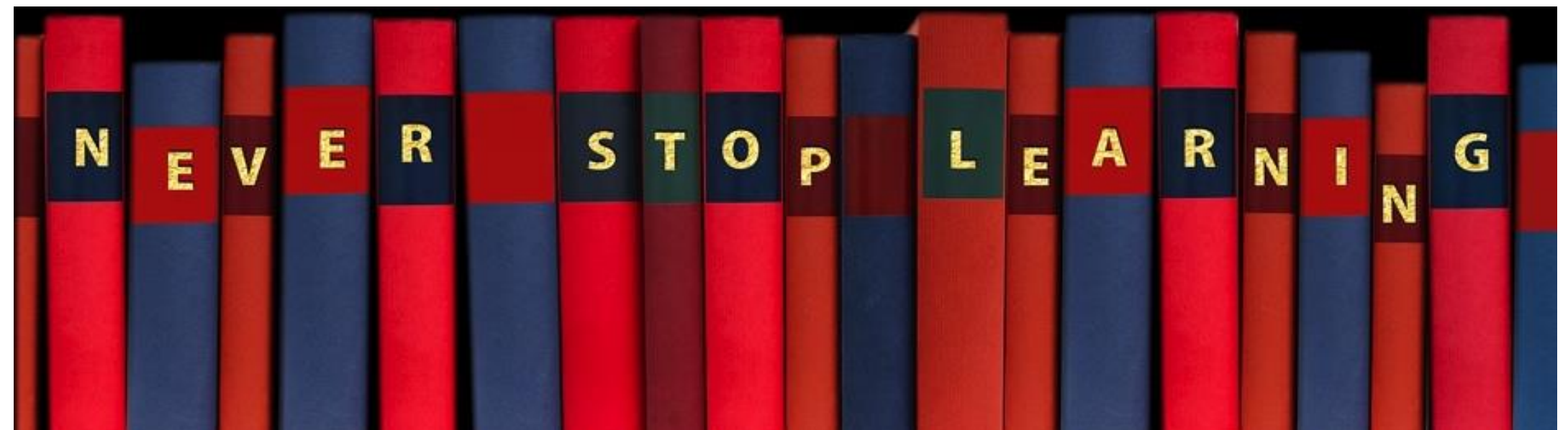




# Tutorials for Students

Moving forward, we plan to offer student access to tutorials at our conferences at a **nominal fee**.

Tell your students!  
Tell your friends!



# Value for our Members

More than one type of member:

- Young professionals (YP).
- Women (W).
- Academics (A).
- Industry professionals (IP)

**Important to reach out to many regions:**

Africa, India, Southeast Asia, Central/South America, Middle East, China, Japan, Korea, Singapore,...



# Some Initiatives in Motion...

- **SP Innovations Electronic Newsletter** (*A. Tewfik*)
- **Interactive SP App** for Society Resources (*N. Sidiropoulos*)
- **Online Journal** with Multimedia Capabilities (*S. Theodoridis*)
- Conference focused on **Disruptive Innovations** (*F. Pereira*)
- **Industry Advisory Board** (*A. H. Sayed*)

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# Outreach Campaign

33

- Visibility campaign
- Promotional videos
- Webinar series
- Educational initiative
- Outreach initiative
- Industry initiative
- Signal Processing blog
- Pub. & Conf. initiatives

 <p>5:08</p>	<b>IEEE Signal Processing Society: Multimedia Forensics</b> IEEE Signal Processing Society 744 views
 <p>JILL NELSON Associate Professor, George Mason University National Science Foundation's CAREER Award George Mason University's Teaching Excellence Award</p> <p>1:32</p>	<b>Careers in Signal Processing: A Versatile Field for a Volatile</b> IEEE Signal Processing Society 1.1K views
 <p>What do you do for fun?</p> <p>6:20</p>	<b>Signal Processing and Machine Learning (Spanish)</b> IEEE Signal Processing Society 544 views
 <p>2:59</p>	<b>The Benefits of Spoken Language Technology</b> IEEE Signal Processing Society 1.3K views
 <p>مرحباً، كيف حالك؟</p> <p>2:06</p>	<b>What Is Signal Processing? (Arabic)</b> IEEE Signal Processing Society 343 views



# 2016-2018 Sponsored Events

34

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# Active Chapters

35

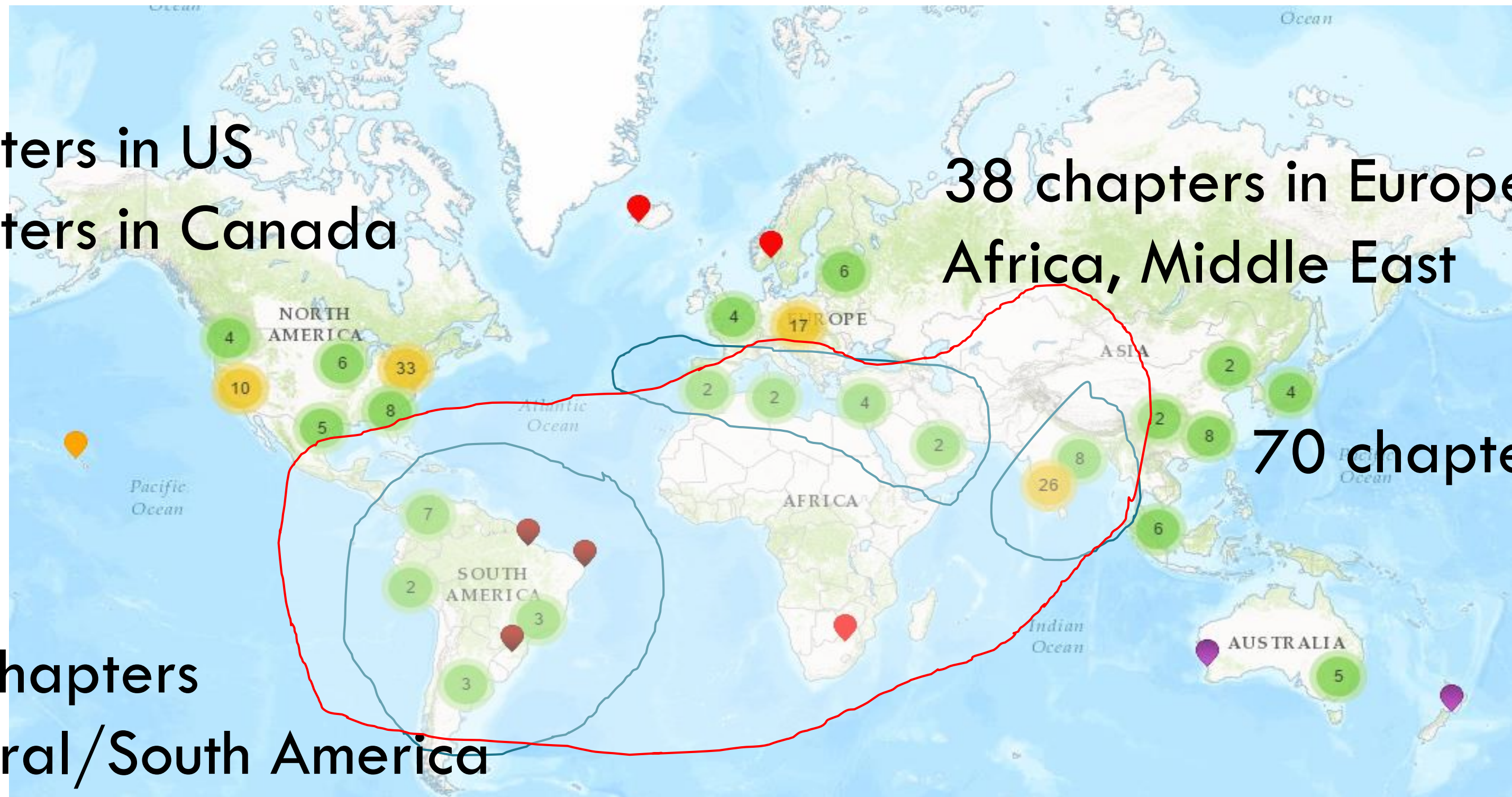
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60 chapters in US  
10 chapters in Canada

38 chapters in Europe,  
Africa, Middle East

70 chapters in Asia

16 chapters  
Central/South America



# Going Global...

The Society is launching new initiatives to allow members to organize society-sponsored events at the **local level**:

**Educational Objective:** Schools, webinars.

**Networking Objective:** Forums.

**Technical Objective:** Regional meetings.

Up to \$5K support available per event.





# Regional Events

Summer or winter schools.

**Purpose:**  
educational opportunities to students & practitioners.

**SEASONAL SCHOOLS**

Panel sessions & presentations by industry experts.

**Purpose:** aimed at networking.

**FORUMS**

Local technical events.

**Purpose:** serve a local/regional community.

**REGIONAL MEETINGS**



# Chapter of the Year Award

38

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**Chapter with highest quality of programs, activities and services.**

## **Recent Recipients:**

**2017 – Santa Clara Valley & Vancouver Chapters**

2016 – Gujarat Chapter

2015 – Gujarat Chapter

2014 – Malaysia Chapter

2013 – Italy Chapter

2012 – Tainan Chapter



# Chapter Support

- **Distinguished Lecturer Visits.**
- **Distinguished Industry Speakers.**  
*(both \$3,500 per Chapter annually).*
- **Chapter Meeting Support – \$500 support annually.**
- **Seasonal Schools, Forums, Regional Meetings (\$5,000)**





# We serve you in (many) other ways...

40

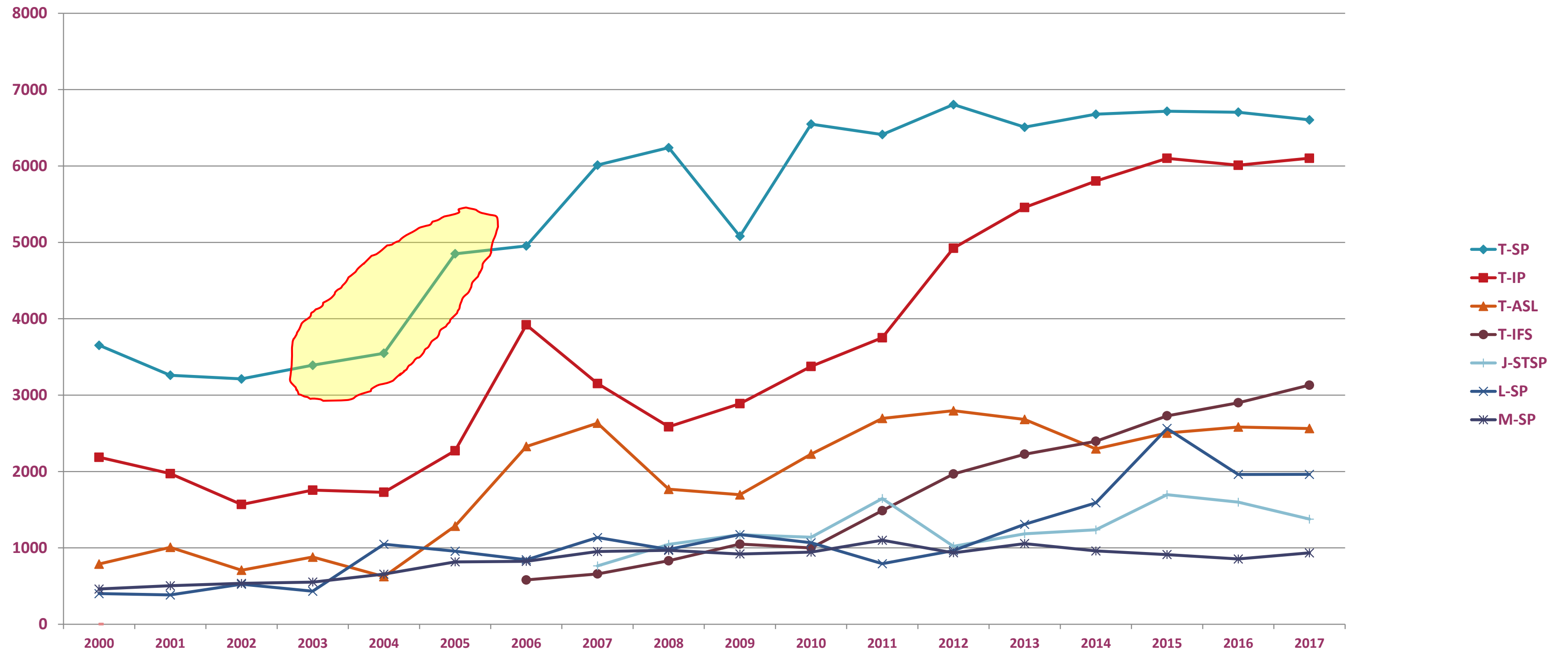
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# Publication Trend

41

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# Total Published Pages

42

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# Vetting Published Science...

43

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**Galileo**  
(1564-1642)



**Fourier**


(1768-1830)

## PRESIDENT'S MESSAGE

Ali H. Sayed | IEEE Signal Processing Society President | [ali.sayed@epfl.ch](mailto:ali.sayed@epfl.ch)

# Galileo, Fourier, and Openness in Science



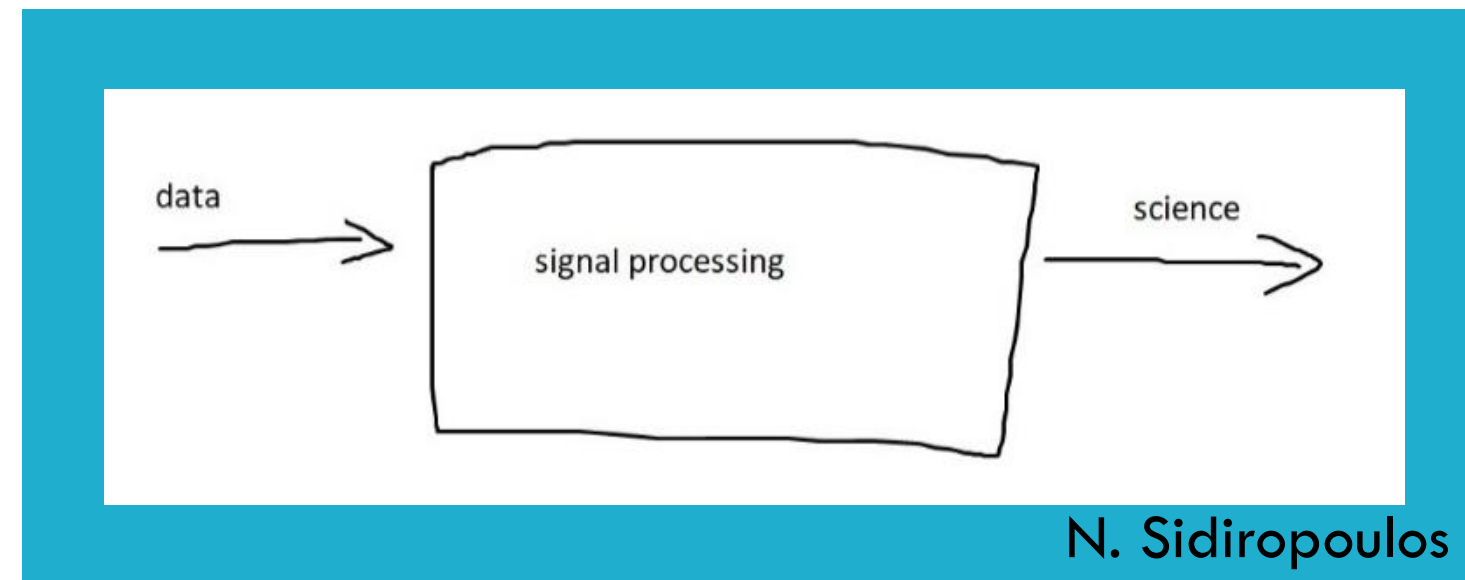
JOURNAL	IMPACT FACTOR
IEEE Signal Processing Magazine	9.65 
IEEE J. Selected Topics Signal Processing	5.30
IEEE Trans. Image Processing	4.82
IEEE Trans. Information Forensics & Security	4.33
IEEE Trans. Signal Processing	4.30
IEEE Signal Processing Letters	2.53
IEEE Trans. Audio/Speech/Language	2.49

# The Future is Today

45

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Current research trends are very ambitious and complex.  
**The value of SP needs to be highlighted.**



Brain sciences, social sciences, data-driven sciences, smart manufacturing, personalized health, autonomous systems, AI.



# The Future is Today

- We also need to align our activities with fast-evolving technological trends and present members with an **integrated experience.**

Our members are growing up in a **different technology-driven environment.**



# A New Reality... for IEEE too...

47

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**GOING OUT OF  
BUSINESS!**  
EVERYTHING MUST GO!



**BBC**  
NEWS





# Resource Center



- Repository for SP preprints, slides, data, code, etc.
- Repository for course material, lectures, videos, etc.
- Seamless integration of online resources.

**Single Point of Entry.**



# Resource Center

49

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- Continuing education.
- Short courses, certifications.
- Video competitions.
- History corner.
- Interviews.

> **Volunteers needed** <



Maria Greco

Editor-in-Chief



Nikos Sidiropoulos

VP-Membership



A. H. Sayed

# Integrated Experience

**We are considering developing an app to tie together all Society resources:**

Publications, conferences, events, education, videos, blogs, webinars, lectures, tutorials, your manuscripts, your reviews, etc. into an integrated experience.





**If you are an SPS member, what do you value **MOST** about your membership:**

- 1) Free access to Society periodicals.
- 2) Ability to network with other professionals.
- 3) Discounts on conference fees and other resources.
- 4) Access to newsletters, webinars, tutorials, educational material,...
- 5) Other





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# Naming our Society Awards

53

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**Carl Friedrich Gauss Education Award.**

(1777-1855)



**Norbert Wiener Society Award.**

(1894-1964)



**C. Shannon-H. Nyquist Technical Achievement Award.**

(1916-2001)

(1898-1976)



**Leo L. Beranek Meritorious Service Award.**

(1914-2016)

# IEEE Level Awards Related to SP

54

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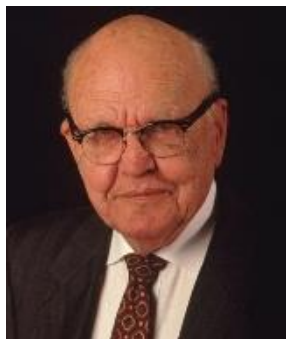
## **IEEE Fourier Award for Signal Processing**

(1768-1830)



## **IEEE James L. Flanagan Speech and Audio Processing Award**

(1925-2015)



## **IEEE Jack S. Kilby Signal Processing Medal**

(1923-2005)



# Society Logo



55

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**Ongoing effort to update/modernize the Society logo to better reflect current state of discipline.**





**Should we make reproducible  
research the default for our  
Publications?**

**1) YES.**

**2) NO.**



5

**Insert embedded results link**



You can find this presentation on  
the Society's website.



*Thank you!*