Opportunity to Develop Technical & Leadership Skills

Tomy Sebastian, Fellow IEEE
IEEE IAS President

March 18, 2017

R4 Student Leadership Conference
To Design and Develop Integrated Motor/Controller drive systems (Power Packs) for Automotive and Alternate Applications. Allow our customers to move from low cost/low technology to low cost, low mass, high precision technology.

Encompasses:
- System Integration
- Performance Enhancement
- Sensor Fusion
- Integrated Chassis Control
American Institute of Electrical Engineers

- 1884, New York
- Founders: Th. Edison, A. Bell, N. Tesla, E. Weston....
- Presidents: N. Green (1st), A. Bell, Ch. Steinmetz, ....
- Scope: telegraphy, telephone, lighting, electric power & transmission, electric machines

Institute of Radio Engineers

- 1912, New York
- G. Marconi (radio), John Flemming (vacuum diode), Lee d’Forest (vacuum triode)
- Scope: wireless telegraphy, broadcasting, television, electronics in general

1 January 1963
AIEE and IRE merged to form IEEE
Institute of Electrical and Electronic Engineers

IEEE’s core purpose is to foster technological innovation and excellence for the benefit of humanity.

- Technology
- Innovation and excellence
- Humanity

Advancing Technology for Humanity
Attributes of IEEE

- The world’s largest organization of technical professionals
  - More than 424,000 members (117,000 Students)

- 39 Societies and 7 Technical Councils
  - With a different technical focus

- In over 160 countries
  - 334 Sections
  - 2,116 Technical Chapters and 1,481 Student Branch Chapters

- More than 1,810 conferences annually in 2016
  - 5 per day on average
Industry Applications Society

- IAS was formed in 1965, two years after the creation of IEEE – This is our 50th Anniversary year!

- Strategic plan – Globalization and Youth

- Current Members approximately 14,000 (5th largest in IEEE)

- 53% Outside North America
Attributes of IAS

- Over 336 Chapters – many joint with other Societies like PELS, PES, IES
- Over 187 student branch chapters in 31 countries and 149 technical chapters in 67 countries
- Financial Sponsor of 16 and Technical Sponsor of more than 30 Conferences per year
- Membership dues of
  - Regular $20/year
  - Student $10/year
What makes IAS a unique Society

- Unique mix practicing engineers and researchers rubbing shoulders and collaborating
- 20 technical committees – broad range
- Emphasis on local contact – Chapters and SB Chapters development and support
- Sister societies – share conferences and publications
- Support 68 IEEE standards (Total of 1200 IEEE wide)
- Chapter support and Student Travel support
Membership as of Dec 31, 2016
14,020 members / 2,688 students*

IAS Members by Line of Business

- Manufacturing Industry, Energy, Commerce and Transportation: 35%
- Other Industries & Non-specified: 19%
- Students, University & Indep. Research: 41%
- Retired: 5%

IAS Members by Grade

- Graduate: 19%
- Senior & LS: 16%
- Member & LM: 54%
- Undergrad. Student: 7%
- Fellow & LF: 3%
- Affiliate & Associate: 1%

54% Industry Sector, 70% Member & SM, 26% Student, 3% Fellow
* Graduate Students not included
Broad Range of Technical Interest
4 Departments, 20 Technical Committees

- Cement Industry
- Petroleum and Chemical Industry
- Pulp and Paper Industry
- Metal Industry
- Mining Industry
- Electrical Safety

- Electric Machines
- Industrial Drives
- Industrial Power Converter
- Power Electronic Devices/Components
- Renewable and Sustainable Energy Conversion Systems
- Transportation Systems

- Industrial Lighting and Displays
- Electrostatic Processes
- Industrial Automation and Control

- Energy Systems
- Power Systems Engineering
- Codes and Standards
- Power Systems Protection
- Rural Electric Power
Manufacturing Systems & Development Department’s Committees

- Electrostatic Processes
- Industrial Automation and Controls
- Industrial Lighting & Displays
- Electrostatic Processes
Industrial Power Conversion Systems Department

- Electric Machines
- Industrial Drives
- Renewable and Sustainable Energy Conversion Systems
- Industrial Power Converters
- Transportations Systems
- Devices
Industrial and Commercial Power Systems Department’s Committees

Power System Protection

Power System Engineering

Energy Systems

Rural Electric Power

Codes and Standards
Process Industries Department’s Committees

- Cement Industry
- Petroleum & Chemical Industry
- Electrical Safety
- Mining Industry
- Pulp and Paper Industry
- Metal Industry
IAS Membership Benefits

- Membership fee for the IA-Society (US$10 students, US$20 for higher grade)

- The membership includes
  - Online IAS Newsletter, monthly
  - Industry Application Magazine, printed version, bimonthly
  - Access to IEEE Xplore
  - US$300...600 rebate at IAS supported conferences
  - US$50...200 rebate at conference tutorials
  - Participation possibility in technical committees
  - Access to IAS Webinars

- Being member of a ~14,000-member community

We provide free first year membership
IAS Publications

- Presentation first Policy
- Conference Records
  - Between 10 and 15 each year
- IAS Magazine
  - Published six times per year
  - Approximately 500 pages
- Transactions on Industry Applications
  - Published six times per year
  - Approximately 2000 pages
Joint Publications

- Journal of Emerging and Selected Topics in Power Electronics
- IEEE Trans. On Transportation Electrification
Student Support

- **Myron Zucker Student-Faculty Research Grant Program**
  - Sponsoring two research projects annually.
  - The project must be designed to produce Myron Zucker Student-Faculty Research Grant Program publishable results in one year.
  - The funding is not exceeding $25,000 each.

- **Travel Awards**

- **Student contests**
Humanitarian Activities

- Electrical Powerline Safety awareness program
- Smart Village
- Student Humanitarian contest
"The Club of the 6" IAS is technical co-sponsor of 6 student led technical conferences.
6 student led technical conferences

<table>
<thead>
<tr>
<th>Conference</th>
<th>Status</th>
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<tbody>
<tr>
<td><strong>International Youth Conference on Energy, IYCE</strong></td>
<td>Bi-annually</td>
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<tr>
<td>- BUTE SB PES/IAS Chapter, Hungary</td>
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<tr>
<td><strong>Workshop on Power El. and Power Quality Appl. , PEPQA</strong></td>
<td>Bi-annually</td>
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<tr>
<td>- University of los Andes SB IAS Chapter, Colombia</td>
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<tr>
<td><strong>Power and Energy Conference in Illinois, PECI</strong></td>
<td>Annually</td>
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<tr>
<td>- University of Illinois Urbana-Champaign SB PES/IAS/PELS Chapter, PECI,</td>
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<tr>
<td>Urbana-Champaign, USA</td>
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<tr>
<td><strong>Power and Energy Conference at Texas, TPEC</strong></td>
<td>Bi-annually</td>
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<tr>
<td>- Texas A&amp;M University SB PES/IAS/PELS Chapter, USA</td>
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<tr>
<td><strong>International Young Scientists Forum</strong></td>
<td>Annually</td>
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<td>- IRE NASU SB IAS Chapter, Ukraine, (Co-organizer)</td>
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<tr>
<td><strong>Future Integrated Network System, FINs</strong></td>
<td>Starting March 2018</td>
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<tr>
<td>- University of Strathclyde SB IAS/PELS Chapter</td>
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<td>- University of Sheffield SB IAS Chapter</td>
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<td>- University of Stirling SB IAS Chapter</td>
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<td>- Glasgow Caledonian University SB IAS/PELS Chapter, United Kingdom</td>
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Travel Programs

- IAS CMD Conference Student Publication and Travel Grant Program
- IAS WIE Initiative Travel Grant Program
- IAS CMD Conference Information Desk Volunteer Program
- APEC and ECCE Conference Travel Grant Programs
- Myron Zucker Prevention Through Design - Student Engineering Education Initiative (ESW Travel Grant Program)
- Annual Meeting Travel Grant Program, AMTGP 2017
- Myron Zucker Student travel grant program
Summary- Benefits to an Active Student member

- Unlimited Opportunity to Develop Leadership Skills
- Tremendous Networking Opportunity (True International Networks) and friends
- Mentorship from & Networking with Academic and Industry Leaders
- Learn the latest Technical developments in the area
Get involved, we need you!

- Free IAS Membership to IEEE members attending R4 SLC
  - Use Promotion code IASMBR2017

- Web
  - http://ias.ieee.org
  - http://ias.ieee.org/chapters-a-membership.html

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Thank You for Your Attention