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# PHYSICAL AND ANALYTICAL ELECTROCHEMISTRY DIVISION (PAED)

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May 2017

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## Division Officers (2015-2017)

<b>Chair:</b>	Dr. Pawel Kulesza pkulesza@chem.uw.edu.pl
<b>Vice-Chair :</b>	Dr. Alice Suroviec asuroviec@berry.edu
<b>Secretary:</b>	Dr. Petr Vanýsek pvanysek@gmail.com
<b>Treasurer:</b>	Dr. Robert Calhoun calhoun@usna.edu
<b>Division Past Chair:</b>	Dr. Robert Mantz Robert.a.mantz@us.army.mil

### **Members-at-Large:**

Dr. Plamen Atanassov	plamen@unm.edu
Dr. David Cliffl	d.cliffl@vanderbilt.edu
Dr. Hugh De Long	hugh.delong@us.af.mil
Dr. Alanah Fitch	afitch@luc.edu
Dr. Luke Haverhals	luke.haverhals@gmail.com
Dr. Stephen Maldonado	smald@umich.edu
Dr. Sanjeev Mukerjee	s.mukerjee@neu.edu
Dr. Stephen Paddison	spaddison@utk.edu
Dr. Paul Trulove	trulove@usna.edu

*Newsletter Editor: Petr Vanýsek*

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# *Symposium Planning Committee*

*Pawel Kulesza, PAED Chair  
(pkulesza@chem.uw.edu.pl)*

*Alice Suroviec, PAED Vice-Chair  
(asuroviec@berry.edu)*

## **Recent and New Activities** **(Symposia)**

**231st ECS Meeting, May 28-Jun 1, 2017, New Orleans, LA**

- **A03 - Battery Electrolytes**  
**Battery Physical and Analytical Electrochemistry**  
(Wladyslaw Wieczorek, Patrik Johansson, Marek Marcinek, Brett Lucht, and Vito Di Noto)
- **B01 - Carbon Nanostructures for Energy Conversion**  
**Nanocarbons Energy Technology Physical and Analytical Electrochemistry**  
(Jeffrey Blackburn, Vito Di Noto, Plamen Atanassov, Michael Scott Arnold, Stephen Doorn, David E. Cliffl, Christina Bock, and Michael Scott Arnold)
- **B03 - Carbon Nanotubes - From Fundamentals to Devices**  
**Nanocarbons Physical and Analytical Electrochemistry**  
(Stephen Doorn, Yury Gogotsi, Pawel J. Kulesza, Ming Zheng, Slava V. Rotkin, and Bruce Weisman)
- **B06 - Graphene and Beyond: 2D Materials Nanocarbons Dielectric Science and Technology Physical and Analytical Electrochemistry**  
(Michael Arnold, Yaw Obeng, Haim Grebel, Richard Martel, Andreas Hirsch, and Slava V. Rotkin)
- **B08 - Porphyrins, Phthalocyanines and Supramolecular Assemblies**  
**Nanocarbons Organic and Biological Electrochemistry Physical and Analytical Electrochemistry**

- (Karl Kadish, Roberto Paolesse, Tomas Torres, Nathalie Solladie, and Norbert Jux)
- **G01 - Processes at the Semiconductor Solution Interface 7**  
**Electronics and Photonics Dielectric Science and Technology**  
**Electrodeposition Energy Technology Physical and Analytical**  
**Electrochemistry**  
 (Colm O'Dwyer, D. Noel Buckley, Arnaud Etcheberry, Andrew Hillier, Robert P. Lynch, Philippe Vereecken, Heli Wang, and Mahendra Sunkara)
  - **I01 - Oxygen or Hydrogen Evolution Catalysts for Water**  
**Electrolysis 3**  
**Energy Technology Industrial Electrochemistry and Electrochemical**  
**Engineering Physical and Analytical Electrochemistry**  
 (Hui Xu, Vijay Ramani, and Pawel J. Kulesza)
  - **I02 - Materials for Low Temperature Electrochemical Systems 3**  
**Energy Technology Industrial Electrochemistry and Electrochemical**  
**Engineering Physical and Analytical Electrochemistry**  
 (Minhua Shao, Peter Pintauro, Elizabeth Biddinger, and Svitlana Pylypenko)
  - **I03 - Renewable Fuels via Artificial Photosynthesis 2**  
**Energy Technology Organic and Biological Electrochemistry Physical**  
**and Analytical Electrochemistry Sensor**  
 (Nianqiang (Nick) Wu, D. Chu, H. Dinh, N. Gaillard, P. J. Kulesza, A. Manivannan, E. Miller, V. R. Subramanian, Heli Wang, and Pawel J. Kulesza)
  - **I05 - From Electrode to Systems: Invited Perspectives and Tutorials**  
**on Fuel Cell Technology in Memory of Dr. H. Russell Kunz**  
**Energy Technology High Temperature Materials Industrial**  
**Electrochemistry and Electrochemical Engineering Physical and**  
**Analytical Electrochemistry**  
 (Hui Xu, Jim Fenton, Vijay Ramani, Shimshon Gottesfeld, Hubert Gasteiger, Adam Z. Weber, Thomas A. Zawodzinski, and Prof. Dr. Thomas J. Schmidt)
  - **K02 - Electron Transfer in Biological Systems**  
**Organic and Biological Electrochemistry Nanocarbons Physical and**  
**Analytical Electrochemistry**  
 (James D. Burgess, David E. Cliffler, Shelley D. Minteer, Prof. Daniel A Heller, and Alice C. Suroviec)
  - **L01 - Physical and Analytical Electrochemistry, Electrocatalysis, and**  
**Photoelectrochemistry General Session and Grahame Award**  
**Symposium**  
**Physical and Analytical Electrochemistry**  
 (Alice H. Suroviec and Andy Hillier)

- **L02 - Ion-Conducting Polymeric (or, Polymer-based) Materials**  
Physical and Analytical Electrochemistry Battery Energy Technology  
(Vito Di Noto, Ahmet Kosoglu, and Prof. Stephen J Paddison)
- **L03 - Electrochromic and Chromogenic Materials**  
Physical and Analytical Electrochemistry  
(Pawel Kulesza, Aline Rougier, Xungang Diao, and Delia Milliron)

## **232nd ECS Meeting, Oct 1-6, 2017, National Harbor, MD**

- **A05 - Battery Materials: Beyond Li-Ion**  
Battery Physical and Analytical Electrochemistry  
(Jack Vaughey, Jack Vaughey, Yangchuang Xing, Kyle C Smith, and Christopher Rhodes)
- **A07 - Fast Electrochemical Processes and Devices**  
Battery Energy Technology Physical and Analytical Electrochemistry  
(Jeffrey Long, Christopher Johnson, Dr. Roseanne Warren, Thierry Brousse, Daniel Belanger, Wataru Sugimoto, Dr. Pawel J. Kulesza, and Andrea Balducci)
- **B01 - Carbon Nanostructures: From Fundamental Studies to Applications and Devices**  
Nanocarbons Physical and Analytical Electrochemistry  
(Prof. Slava V. Rotkin, Dr. Hiroshi Imahori, Prof. Olga V. Boltalina, and Dr. David E. Cliffel)
- **C03 - State-of-the-Art Surface Analytical Techniques in Corrosion 3**  
Corrosion Physical and Analytical Electrochemistry  
(Dev Chidambaram, Philippe Marcus, Paul M. Natishan, James J. Noel, and Donald Roeper)
- **F03 - Electrochemical Conversion of Biomass**  
Industrial Electrochemistry and Electrochemical Engineering Energy Technology Organic and Biological Electrochemistry Physical and Analytical Electrochemistry  
(Luis Diaz-Aldana, Elizabeth Biddinger, John Staser, Dr. Ramaraja P Ramasamy, Dr. Plamen B. Atanassov, and Dr. Mekki Bayachou)
- **I01 - Polymer Electrolyte Fuel Cells 17 (PEFC 17)**  
Energy Technology Battery Industrial Electrochemistry and Electrochemical Engineering Physical and Analytical Electrochemistry  
(Deborah J. Jones, Deborah J. Jones, Felix Buechi, Hubert Gasteiger, Adam Z. Weber, Pezhman Alireza Shirvanian, Karen E. Swider-Lyons, James M. Fenton, Thomas F. Fuller, Dr. Kazuhiko Shinohara, Peter N. Pintauro, Kelly A Perry, Prof. Hiroyuki Uchida, Peter Strasser, Christophe Coutanceau, Christophe Coutanceau, Shigenori

**Mitsushima, Thomas J. Schmidt, Robert A. Mantz, Sri Narayan, Vijay Ramani, Bryan S. Pivovar, Katherine E. Ayers, Prof. Yong-Tae Kim, and Dr. Hui Xu)**

- **L01 - Physical and Analytical Electrochemistry General Session**  
**Physical and Analytical Electrochemistry**  
**(Alice Suroviec and Dr. Andrew C. Hillier)**
- **L02 - Photocatalysts, Photoelectrochemical Cells and Solar Fuels 8**  
**Energy Technology Physical and Analytical Electrochemistry Sensor**  
**(N. Wu, Dr. Deryn Chu, Dr. Pawel J. Kulesza, Jae-Joon Lee, Dr. Eric L. Miller, Dr. Vaidyanathan Ravi Subramanian, Tetsu Tatsuma , and Heli Wang)**
- **L03 - Physical and Analytical Electrochemistry of Ionic Liquids 6**  
**Physical and Analytical Electrochemistry Energy Technology**  
**Organic and Biological Electrochemistry**  
**(Paul Trulove, Robert Mantz, Luke Haverhals, Vito Di Noto, and Dr. Mekki Bayachou)**
- **L04 - Spectroelectrochemistry 4**  
**Physical and Analytical Electrochemistry Organic and Biological Electrochemistry**  
**(Andrew Hillier, Luke Haverhals, Dr. Graham T. Cheek, and Prof. Scott K Shaw)**
- **L05 - Bioelectroanalysis**  
**Physical and Analytical Electrochemistry Organic and Biological Electrochemistry Sensor**  
**(Shelley Minter, Scott A. Calabrese Barton, Dr. Jessica Koehne, Dr. Mekki Bayachou, and Dr. Jessica Koehne)**
- **L06 - Fundamental Aspects of Electrochemical Conversion of Carbon Dioxide**  
**Physical and Analytical Electrochemistry Energy Technology**  
**Organic and Biological Electrochemistry Sensor**  
**(Pawel Kulesza, David Cliffl, K. Rajeshwar, A. Bocarsly, M. Koper, Nianqiang Wu, and Dr. Graham T. Cheek)**
- **L07 - Computational Electrochemistry**  
**Physical and Analytical Electrochemistry Energy Technology**  
**Industrial Electrochemistry and Electrochemical Engineering**  
**(S. Paddison and Iryna Zenyuk)**
- **L08 - Advanced Techniques for In Situ Electrochemical Systems**  
**Physical and Analytical Electrochemistry Energy Technology**  
**Organic and Biological Electrochemistry Sensor**  
**(Svitlana Pylypenko, Prof. Sanjeev Mukerjee, and Dr. Graham T. Cheek)**
- **L09 - Multi-electron Redox Systems for Next Generation Batteries**  
**Physical and Analytical Electrochemistry Battery Energy Technology**

- (D. Buttry, Dr. Robert A. Mantz, and Prof. Dr. Gang Wu)
- **M02 - Practical Implementation and Commercialization of Sensors 2**  
**Sensor Physical and Analytical Electrochemistry**  
 (Mike Carter, Larry Nagahara, Rangachary (Mukund) Mukundan, Ajit Kholsa, Petr Vanysek, Jin-Woo Choi, Dr. Petr Vanysek, and Prof. Rudra Pratap)
- **Z05 - Sensors for Food Safety, Quality, and Security**  
**Sensor Organic and Biological Electrochemistry Physical and Analytical Electrochemistry Interdisciplinary Science and Technology Subcommittee**  
 (Bryan Chin, A. Simonian, J. Choi, Dr. Ramaraja P Ramasamy, Dr. Nianqiang Wu, Dr. Alice H. Suroviec, Dr. Mekki Bayachou, Peter Hesketh, and Peter Hesketh)

### **233rd ECS Meeting, May 13-17, 2018, Seattle, WA**

- **B01 - Carbon Nanostructures for Energy Conversion**  
**Nanocarbons Physical and Analytical Electrochemistry**  
 (J. Blackburn, V. Di Noto, P. B. Atanassov, M. S. Arnold, S. Doorn, D. E. Cliffel, and C. Bock)
- **B03 - Carbon Nanotubes - From Fundamentals to Devices**  
**Nanocarbons Physical and Analytical Electrochemistry**  
 (S. Doorn, Y. Gogotsi, P. J. Kulesza, M. Zheng, S. V. Rotkin, B. Weisman, and S. Maruyama)
- **I01 - State of the Art Tutorial in Low Temperature Fuel Cell Electrocatalysis: The Challenge of High Current Density Performance at Low Platinum Loading**  
**Energy Technology Industrial Electrochemistry and Electrochemical Engineering Physical and Analytical Electrochemistry**  
 (Adam Z. Weber, P. Strasser, and Karen Swider-Lyons)
- **I02 - Electrosynthesis of Fuels 5**  
**High Temperature Materials Energy Technology Industrial Electrochemistry and Electrochemical Engineering Organic and Biological Electrochemistry Physical and Analytical Electrochemistry**  
 (John Staser, Gessie Brisard, John Flake, W. Mustain, X.-D. Zhou, Turgut Gur, Mogens Mogensen, and Hui Xu)
- **I03 - Oxygen or Hydrogen Evolution Catalysis for Water Electrolysis 4**  
**Energy Technology Industrial Electrochemistry and Electrochemical Engineering Physical and Analytical Electrochemistry**  
 (Dr. Hui Xu, Dr. Katherine E. Ayers, Dr. Pawel J. Kulesza, and Prof. Dr. Gang Wu)

- **I04 - Materials for Low Temperature Electrochemical Systems 4**  
Energy Technology Industrial Electrochemistry and Electrochemical Engineering Physical and Analytical Electrochemistry  
(Dr. Minhua Shao, Prof. Dr. Gang Wu, and Dr. Robert A. Mantz)
- **I05 - Renewable Fuels via Artificial Photosynthesis or Electrolysis 3**  
Energy Technology Organic and Biological Electrochemistry Physical and Analytical Electrochemistry Sensor  
(Dr. Nianqiang Wu, Prof. Jae-Joon Lee, Dr. Pawel J. Kulesza, Prof. Mani Manivannan, Dr. Eric L. Miller, Prof. Bunsho Ohtani, Dr. Vaidyanathan Ravi Subramanian, Dr. Heli Wang, Dr. Nicolas M. Gaillard, and Prof. Frank E Osterloh)
- **L01 - Physical and Analytical Electrochemistry, Electrocatalysis and Photoelectrochemistry General Session**  
Physical and Analytical Electrochemistry  
(Dr. Alice H. Suroviec and Anne C. Co)
- **L02 - Electrocatalysis 9: Symposium in Honor of Radoslav Adzic**  
Physical and Analytical Electrochemistry Energy Technology  
(Dr. Minhua Shao, Gessie Brisard, Dr. Mekki Bayachou, Dr. Nenad M. Markovic, Miomir B. Vukmirovic, Dr. Piotr Zelenay, Dr. Kotaro Sasaki, Stanko R Brankovic, Prof. Dr. Junliang Zhang, and Dr. Jia X. Wang)
- **L03 - Biological Fuel Cells 8**  
Physical and Analytical Electrochemistry Energy Technology  
(Dr. Shelley D. Minteer, Scott A. Calabrese Barton, and Dr. Plamen B. Atanassov)
- **L04 - Charge Transfer: Electrons, Protons, and Other Ions 3**  
Physical and Analytical Electrochemistry Energy Technology  
(Prof. Stephen J Paddison, Vito Di Noto, and Prof. Andy M. Herring)
- **L05 - Oxygen Reduction Reactions**  
Physical and Analytical Electrochemistry Energy Technology  
(Dr. Pawel J. Kulesza, Vito Di Noto, Dr. Robert A. Mantz, Dr. Piotr Zelenay, Dr. Plamen B. Atanassov, Dr. Paul E. Gannon, Dr. Yang Shao-Horn, Dr. Hui Xu, Dr. Minhua Shao, Prof. Sanjeev Mukerjee, Dr. Jeffrey W. Fergus, and Xiao-Dong Zhou)
- **L06 - Nanoporous Materials**  
Physical and Analytical Electrochemistry Energy Technology  
(Dr. Roseanne Warren and Prof. Kunal Karan)
- **L07 - Electrochemistry and Consumer Products**  
Physical and Analytical Electrochemistry Industrial Electrochemistry and Electrochemical Engineering  
(Alanah Fitch, Alice Suroviec, and Dr. E. Jennings Taylor)
- **L08 - Electrochemically Assisted Fluorescence**  
Physical and Analytical Electrochemistry

(Dr. David E. Cliffel)

**234th/AiMES 2018, Sept 30 - Oct 4, 2018, Cancun, Mexico**

- **TENTATIVE F02 - Electrochemical Separations 2**  
**Industrial Electrochemistry and Electrochemical Engineering Energy Technology Physical and Analytical Electrochemistry**  
(Dr. Hui Xu)
- **TENTATIVE I01 - Polymer Electrolyte Fuel Cells 18 (PEFC 18)**  
**Energy Technology Battery Industrial Electrochemistry and Electrochemical Engineering Physical and Analytical Electrochemistry**  
(Dr Deborah J. Jones, Prof. Dr. Hubert Gasteiger, Prof. Hiroyuki Uchida, Prof. Dr. Thomas J. Schmidt, Felix Buechi, Dr. Karen E. Swider-Lyons, Dr. Bryan S. Pivovar, Prof. Peter N. Pintauro, Dr. Vijay K. Ramani, Dr. James M. Fenton, Prof. Dr. Peter Strasser, Dr. Katherine E. Ayers, Adam Z. Weber, Dr. Thomas F. Fuller, Dr. Robert A. Mantz, Dr. Hui Xu, Christophe Coutanceau, Dr. Shigenori Mitsushima, Dr. Kelly A Perry, Prof. Sri Narayan, Pezhman Shirvanian, and Prof. Yong-Tae Kim)
- **TENTATIVE K01 - Electrochemical and Coupled Interfacial Chemical Reactions Relevant to Stimulation and Measurements in Brain Tissue**  
**Organic and Biological Electrochemistry Physical and Analytical Electrochemistry**  
(Dr. Mekki Bayachou, Dr. James D. Burgess, and Dr. Alice H. Suroviec)
- **TENTATIVE L01 - Physical and Analytical Electrochemistry, Electrocatalysis, and Photoelectrochemistry General Session**  
**Physical and Analytical Electrochemistry**  
(Dr. Alice H. Suroviec and Dr. Andrew C. Hillier)
- **TENTATIVE L02 - Molten Salts and Ionic Liquids 21**  
**Physical and Analytical Electrochemistry**  
(Prof. Paul Chappell Trulove and Dr. Robert A. Mantz)
- **TENTATIVE L03 - Electrode Processes 11**  
**Physical and Analytical Electrochemistry Battery**  
(Dr. Andrew C. Hillier, Dr. Andrew C. Hillier, and Prof. Jie Xiao)
- **TENTATIVE L04 - Photocatalysts, Photoelectrochemical Cells and Solar Fuels 9**  
**Energy Technology Physical and Analytical Electrochemistry Sensor**



**(Dr. Nianqiang Wu, Dr. Pawel J. Kulesza, Jae-Joon Lee, Dr. Eric L. Miller, Dr. Vaidyanathan Ravi Subramanian, Tetsu Tatsuma, and Heli Wang)**

- **TENTATIVE L05 - Electroactive and Redox Active Polymers 2  
Physical and Analytical Electrochemistry  
(Dr. Junhua Jiang and Prof. Andy M. Herring)**
  - **TENTATIVE L06 - Chemically Modified Electrodes  
Physical and Analytical Electrochemistry Organic and Biological  
Electrochemistry  
(Dr. Alice H. Suroviec and Dr. David E. Cliffel)**
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**Present PAED meeting is planned as a reception (not luncheon) during the 231<sup>st</sup> ECS Spring Meeting in New Orleans, LA (May, 2017), May 30, 18:30-20:00.**

**Next PAED Luncheon (or reception) will be held during the 233<sup>rd</sup> ECS Spring Meeting in Seattle, WA (May, 2018).**

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***PAED 2016***  
***Treasurer's Report – 2015 Calendar Year***

**Total Income:** \$15,099

Dues = \$5,020, Symposium Support = \$3,000

**Total Expenses:** \$79,707

Transfer to divisional awards \$60,000, Travel Grants over \$7,600, Symposia support = \$9,700

**Balance (December 31, 2015):** \$33,195

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# **Students and Young Faculty Awards**

## **PAED Travel Award Winners for the 231<sup>st</sup> ECS Meeting in New Orleans (May 2017)**

### Young Professionals:

- Early Career: Yong Yan - Ahmedabad University
- Post Doc: Subhasis Roy - Ohio University

### Students:

- Erin Gawron - Geogia Tech, Atlanta
- Fan Wu - Queen Mary University, London



## **Division Awards**

### **Physical and Analytical Electrochemistry Division David C. Grahame Award**

The Physical and Analytical Electrochemistry Division David C. Grahame Award was created in 1981 to encourage excellence in physical electrochemistry research and to stimulate publication of high quality research papers in the Journal of The Electrochemical Society.

Nomination Deadline: October 1, odd years

Presented: Spring meeting, odd years

Recipient qualifications

The recipient will be a currently active ECS Member who made some recent outstanding scientific contribution to physical electrochemistry. For the purpose of this award, “currently active” is to be measured by publication of more than one paper in the Journal and attendance at more than one Society meeting, as a member of the Society, within the previous five years. A nominee will be automatically considered through two successive award cycles. Re-nomination is permitted.

Award

The award consists of a scroll, and a \$1,500 prize. The recipient is required to attend the Society meeting at which the award is given and present a lecture in the general session of, or a division sponsored symposium. In the event that the award is made jointly to two or more co-recipients, each co-recipient will receive a scroll and a check for an amount to be decided by PAED.

### **Physical and Analytical Electrochemistry Division Max Bredig Award in Molten Salt and Ionic Liquid Chemistry**

The Physical and Analytical Electrochemistry Division Max Bredig Award in Molten Salt and Ionic Liquid Chemistry was established in 1984 to recognize excellence in the field and to stimulate publication of high quality

research papers in this area in the Journal of The Electrochemical Society. The award was financed by contributions from ARCO Metals Company and the Aluminum Company of America. Since this fund was established, an additional contribution was made by Princeton Applied Research.

Nomination Deadline: March 1, odd years

Presented: Fall meeting, even years

Recipient qualifications

The recipient will be a scientist working in the area of molten salt and ionic liquid chemistry with important contribution(s) to this area. The recipient need not be a member of the Society. A nominee will be automatically considered through two successive award cycles. Re-nomination is permitted.

Award

The award consists of a scroll and a \$1,500 prize. As the award presentation coincides with the International Symposium on Molten Salts and Ionic Liquids, the recipient is required to attend the corresponding Society meeting and present a lecture at the symposium. In the event that the award is made jointly to two or more co-recipients, each co-recipient will receive a scroll and a check for an amount to be decided by PAED.

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Upcoming ECS meetings

232nd ECS Meeting

October 1-6, 2017 — National Harbor, MD (greater Washington, DC area)  
Gaylord National Resort and Convention Center

233rd ECS Meeting

May 13-17, 2018 — Seattle, WA  
Seattle Sheraton and Washington State Convention Center

AiMES 2018

September 30-October 4, 2018 — Cancun, Mexico  
Moon Palace Resort

235th ECS Meeting

May 26-June 2, 2019 — Dallas, TX  
Sheraton Dallas

236th ECS Meeting  
October 13-17, 2019 — Atlanta, GA  
Hilton Atlanta

237th ECS Meeting  
May 10-15, 2020 — Montreal, Canada  
Palais des congress de Montreal

PRiME 2020  
October 4-9, 2020 — Honolulu, HI  
Hawaii Convention Center & Hilton Hawaiian Village

## **Report from the Nominating Committee:**

### **Slate of the officers and members at large for the 2017 election**

**Division Chair: Alice Suroviec**

**Division Vice-Chair: Petr Vanysek**

**Division Secretary: Andy Hillier**

**Division Treasurer: Stephen Paddison**

#### **For members at large we have:**

**Anne Co (new nomination)**

**Svetlana Pylypenko (new nomination)**

**Vito di Noto (new nomination)**

**Robert Lynch (new nomination)**

**Iwona A. Rutkowska (new nomination)**

**Luke Haverhals (current member)**

**Hugh DeLong (current member)**

**Stephen Maldonado (current member)**

**Plane Atanassov (current member)**

**Sanjeev Mukerjee (current member)**

**Paul Trulove (current member)**

**Alan Fitch (current member)**