

Workshop/Tutorial

“CARBON MATERIALS ACROSS DIMENSIONS”

Date:

July 10, 2016, before the International Conference *Carbon 2016* (July 10-15).

Venue:

Deans Hall, Penn State Conference Center, State College, PA, USA.

Attendance and Content:

Researchers who seek guidance regarding the virtues and liabilities of the various sp^2 -hybridized carbon materials, as clarified by (i) similarities and differences in their synthesis, properties and applications, (ii) what is known, and (iii) what is known to be unknown.

(See program below.)

Format:

Opening plenary session (overviews from recognized experts), three breakout sessions with extended discussion, concluding plenary session (status and recommendations).

Outcome:

CARBON editors will serve as reporters for the three breakout sessions. These proceedings will be published in the CARBON journal, either as a standalone paper or as an introductory paper to a series of contributed papers to the workshop, which may lead to a special issue of the journal.

PROGRAM

Plenary Session 1: Introduction and Overview

(Mauricio Terrones and Ljubisa Radovic, presiding)

- 09:00-09:40 Mildred S. Dresselhaus (general overview of carbons materials: 1D, 2D and 3D)
- 09:40-10:10 Morinobu Endo (1D carbon nanofibers: progress, challenges and applications)
- 10:10-10:40 Pulickel Ajayan (1D carbon nanotubes: progress, challenges and applications)
- 10:40-11:00 Break
- 11:00-11:30 Rodney S. Ruoff (2D graphene: challenges and perspectives)
- 11:30-12:00 Humberto Terrones (3D carbon materials: from molecules to materials)
- 12:00-12:30 Takashi Kyotani (3D carbon materials: supra-molecular vision)
- 12:30-14:00 Lunch

Session 1: 1D Carbon Materials – From Nanofibers to Nanotubes

(Mauricio Terrones, presiding)

- 14:00-14:20 Benji Maruyama (CNF formation and characterization)
- 14:20-14:40 Yoong Ahm Kim (Hybrid 1D systems: carbon chains inside CNTs)
- 14:40-15:00 John Badding (Novel 1D carbon nanothreads)
- 15:00-15:40 Discussion: current applications, challenges and perspectives
- 15:40-16:00 Break

Session 2: 2D Carbon Materials – From Graphite to Graphene and Carbon Dots

(Robert Hurt and Gareth Neighbour, presiding)

- 14:00-14:20 Qiang Zhang (Doped graphene: synthesis, applications and challenges)
- 14:20-14:40 Ya-Ping Sun (Quantum carbon and graphene dots: synthesis and applications)
- 14:40-15:00 Rodney S. Ruoff (Novel 2D carbon materials – diamanes)
- 15:00-15:40 Discussion: current applications, challenges and perspectives
- 15:40-16:00 Break

Session 3: 3D Carbon Architectures – From Molecular Structures to Porous Materials

(Chong Rae Park, presiding)

- 14:00-14:20 Patrick Campbell (Graphene based 3D periodic aerogel)
- 14:20-14:40 Liming Dai (Graphene-CNT 3D architecture based energy applications)
- 14:40-15:00 Quan-Hong Yang (3D graphene assemblies using 2D sheets)
- 15:00-15:40 Discussion: current applications, challenges and perspectives
- 15:40-16:00 Break

Plenary Session 2: Summary and Conclusions

(Robert Hurt, presiding)

- 16:00-16:15 Report of 1D group: status and recommendations
(Mauricio Terrones, reporter)
- 16:15-16:30 Report of 2D group: status and recommendations
(Gareth Neighbour, reporter)
- 16:30-16:45 Report of 3D group: status and recommendations
(Chong Rae Park, reporter)

***Harold W. Kroto Memorial:
Moments, Memories and Legacy***

(Deans Hall, Penn State Conference Center, State College, PA, USA)

- 17:00-17:10 Harry Kroto Video – Geoset
- 17:10-17:20 Robert Hurt and Peter Thrower – Harry Kroto and the *Carbon* journal
- 17:20-17:30 Jonathan Hare – Memories at Sussex: the early times
- 17:30-17:40 Morinobu Endo – Memories in Japan
- 17:40-17:50 Malcolm Heggie – Memories at Sussex
- 17:50-18:00 Humberto Terrones – Memories in Mexico
- 18:00-18:10 Naresh Dalal – Memories in Florida
- 18:10-18:20 Mildred Dresselhaus – Scientific contributions and interactions
- 18:20-18:30 Chris Ewels – Research memories and the Vega Science Trust
- 18:30-18:40 Steve Acquah – Memories and Geoset creation
- 18:40-18:50 Mauricio Terrones – Harry’s philosophy of multidisciplinary and multinationality
- 18:50-19:00 Paul Dunk – Re-emergence of fullerene and nanotube growth at FSU
- 19:00-19:05 Ljubisa Radovic – Carbon Societies Association: *The Kroto Medal*