

THE THIRTEENTH BORON IN THE AMERICAS CONFERENCE

Sunday, June 03, 2012

Purdue Memorial Union Lobby

5:00-7:00 PM Registration

PMU South Ball Room

7:00-9:00 Welcome Reception and Cocktail

Monday, June 04, 2012

Stewart Center 306

7:00-8:20 Registration/Breakfast

Stewart Center 302

8:30-9:15 Inauguration of Herbert C. Brown Birth Centennial Celebrations
Chief Guest: **Mr. John R. Dennis**, Mayor of West Lafayette

Session I Chair: Narayan Hosmane

9:15-10:00 O-01 *Boranes of the Second Kind*
M. Frederick Hawthorne, University of Missouri, Columbia, MO

10:00-10:30 Coffee Break: Stewart Center 306

Session II Chair: George Kabalka

10:30-11:00 O-02 *Asymmetric Organoborane Conversions via the Amazing 9-Bora-bicyclo[3.3.2]decanes*
John A. Soderquist, University of Puerto Rico

11:00-11:30 O-03 *Dodecaborate Lipid Liposomes as New Vehicles for Boron Delivery System of Neutron Capture Therapy*
Hiroyuki Nakamura, Gakushuin University, Tokyo, Japan

11:30-12:00 O-04 *Transition Metal-Mediated Functionalization of Carboranes*
Zuowei Xie, The Chinese University of Hong Kong, China

12:00-1:30 Lunch: South Ball Room, Purdue Memorial Union

Session III**Chair: Frieder Jäkle**

- 1:30-2:00 O-05 *Boron-Doped Organometallic Polymers and Luminescent π -Systems*
Matthias Wagner, Andreas Lorbach, Estera Januszewski, Alexander Hübner, Animesh Das, University of Frankfurt, Germany
- 2:00-2:20 O-06 *Iododemetalation of Organotrifluoroborate and Organotin Reagents Using a $FeCl_3$ -NaI System*
Min-Liang Yao, David W. Blevins, Li Yong, George W. Kabalka, The University of Tennessee, Knoxville, TN
- 2:20-2:40 O-07 *Synthesis and Suzuki Coupling of B/Sn Bismetallic Arenes*
Hao Li, Milton R. Smith, III, and Robert E. Maleczka, Jr., Michigan State University, East Lansing, MI
- 2:40-3:00 O-08 *Synthesis and Biological Evaluation of Carboranyl-5-thio-D-glucopyranose Derivatives*
Devangi Patel, Ivan Snajdr, Narayan S. Hosmane, Northern Illinois University, Dekalb, IL
- 3:00-3:30 Coffee Break: Stewart Center 306

Session IV**Chair: Larry Sneddon**

- 3:30-4:00 O-09 *Chemistry and Applications of Group 5 and 8 Metallaboranes*
Sundargopal Ghosh, Indian Institute of Technology Madras, India
- 4:00-4:20 O-10 *Synthesis and Reactivity of Half-Sandwich Metallatricarbadecaboranyl Complexes*
Emily R. Berkeley, Ariane Perez-Gavilan, Beverly A. Barnum, Patrick Carroll, Larry G. Sneddon, University of Pennsylvania, Philadelphia, PA
- 4:20-4:40 O-11 *Development of Ferracarborane Complexes for Bioanodes and Sensors*
Scott S. Graham, Paul A. Jelliss, Rebecca J. Callahan, Saint Louis University, Saint Louis, MO
- 4:40-5:00 O-12 *Trioxorhena(VII)carborane anion and its methyl substituted analog: Synthesis, structure, DFT and catalytic studies*
Kothanda Rama Pichaandi, Phillip E. Fanwick and Mahdi M. Abu-Omar, Purdue University, West Lafayette, IN
- 5:00-5:30 O-13 *Carborane Based Optoelectronically Active Materials*
Kyung-Ryang Wee, Yang-Jin Cho, So-Yeong Jeong, and **Sang Ook Kang**
Korea University, Sejong, Chochiwon, South Korea

Tuesday, June 05, 2012

Stewart Center 306

7:00-8:20 Registration/Breakfast

Stewart Center 302

Session V Chair: John Soderquist

- 8:30-9:00 O-14 *Method for Estimation of Extent of Doping of Conducting Materials with Molecular Oxygen by Preparation of Stable Borane Lewis Base Complexes Using Borohydride Reagents*
Mariappan Periasamy, University of Hyderabad, Hyderabad, India
- 9:00-9:20 O-15 *Boronated Glucose Derivatives as Potential Boron Neutron Capture Therapy (BNCT) Reagents*
Srinivasa R Marepally, Min-Liang Yao, George W. Kabalka
The University of Tennessee, Knoxville, TN
- 9:20-9:40 O-16 *Large Scale Synthesis of Boron Nitride Nanotubes*
Shena M. Stanley, Amartya Chakrabarti, John Price, Jeffery Gelband,
Narayan S. Hosmane, Northern Illinois University, Dekalb, IL
- 9:40-10:00 O-17 *Synthesis and Characterization of Rhenacarboranes as Drug-Delivery Vehicles*
Daniel Pruitt, Sara Baumann, Dr. Paul Jelliss, Saint Louis University, Saint Louis, MO

10:00-10:30 Coffee Break: Stewart Center 306

Session VI Chair: Hiroyuki Nakamura

- 10:30-11:00 O-18 *Carboranes Increase the Antiproliferative and Antimigratory Potency of Nampt Inhibitors*
Mark W. Lee, Jr., Yulia Sevryugina, Aslam Khan, Shui Q. Ye, University of Missouri, Columbia, MO
- 11:00-11:30 O-19 *Exploring the BN/CC Isosterism in Conjugated Aromatic Systems*
Shih-Yuan Liu, Adam J. V. Marwitz, Alec Brown, University of Oregon, Eugene, OR

11:30-12:00 O-20 *Synthetic Utility of Organotrifluoroborate Salts and Applications in Natural Product Synthesis*
Robert A. Batey, John Janetzko, Ramsay Beveridge, Farhad Nowrouzi, Adam Kafal, Timothy Ramadhar, Jazmin Bansagi, University of Toronto
Toronto, ON, Canada

12:00-1:30 Lunch: South Ball Room, Purdue Memorial Union

Wetherill Chemistry Building

1:30 BORAM-XIII Group photo
Please assemble in front (south side) of Wetherill Chemistry Building (WTHR) steps

Stewart Center 214

2:00-3:30 **Poster Session, Chair: P. V. Ramachandran**

P-01 *Synthesis of Carboranyl Conjugates of N3-Substituted Thymidine and their Evaluation as Substrates of Recombinant Human Thymidine Kinase 1*
Ahmed Khalil, Hitesh K. Agarwal, Rohit Tiwari, Kevin G. Ricks, Elena Sjuvarsson, Staffan Eriksson, Michael V. Darby, 1Werner Tjarks
The Ohio State University, Columbus, OH

P-02 *Synthesis, Characterization, and DFT Study of Trioxorhenium(VII) Carborane Complexes Stabilized by Donor ligands*
Andrew Preston, Kothdanda Rama Pichaandi, Mahdi M. Abu-Omar
Purdue University, West Lafayette, IN

P-03 *Nematic Liquid Crystals Derived from the [closo-1-CB₉H₁₀]⁻ and [closo-1-CB₁₁H₁₂]⁻ Anions*
Jacek Pecyna, Bryan Ringstrand, Richard P. Denicola and Piotr Kaszyński,
Vanderbilt University, Nashville, TN

P-04 *Synthesis and Characterization of Quadrupolar Liquid Crystals Derived from the [closo-B₁₀H₁₀]²⁻ Anion*
Aleksandra Jankowiak, Andrzej Balinski Kristein Mason, Piotr Kaszynski, and Victor G. Young Jr., Vanderbilt University, Nashville, TN

P-05 *One-pot C-H Activation/Borylation/Suzuki Reactions with Imidazolylsulfonate Electrophiles*
Damith Perera, Milton R. Smith, III, Jennifer Albaneze-Walker, Robert E. Maleczka, Jr. Michigan State Universtiy, East Lansing, MI

- P-06 *A Catalytic Borylation Route to TMC-95 and Related Studies*
Fangyi Shen, Luis Sanchez, Susanne L. Miller, Milton R. Smith, III, Robert E. Maleczka, Jr. Michigan State University, East Lansing, MI
- P-07 *Functionalized Boron Nanorods for Water Solubility*
Eyusalam Bedasso, Amartya Chakrabarti, Matt Rodriguez, Kennieth Boblack, Narayan S. Hosmane. Northern Illinois University, Dekalb, IL
- P-08 *Synthesis of Glutamine Derived Chemotherapeutical Drugs for BNCT*
Hiren Patel, Tam Le, Dan Jeffries, Ivan Snajdr, Barrie Bode, Narayan S. Hosmane, Northern Illinois University, Dekalb, IL
- P-09 *Low cost synthesis of p-Carborane*
Ronald N. Peter, Amartya Chakrabarti, Ivan Snajdr, Glen Svenningsen, Narayan S. Hosmane, Northern Illinois University, Dekalb, IL
- P-10 *Polymer-supported Organotrifluoroborates for Radiohalogenation*
Kelly E. Hall, Li Yong, Min-Liang Yao, and George W. Kabalka, The University of Tennessee, Knoxville, TN
- P-11 *Dialkynylation of Aryl Aldehydes using Dialkynyl Chloroboranes*
Adam Pippin, Min-Liang Yao, and George W. Kabalka, The University of Tennessee, Knoxville, TN
- P-12 *Synthesis of PEG-Supported Organotrifluoroborates and Their Application in Homo-coupling*
Li Yong, Min-Liang Yao, George W. Kabalka, The University of Tennessee, Knoxville, TN
- P-13 *Nucleophilic Attack of the $[trans-B_{20}H_{18}]^{2-}$ Ion by Carbon Nucleophiles*
Martin J. Mantz and Debra A. Feakes, Texas State University-San Marcos, San Marcos, TX
- P-14 *Synthesis of Dichloroindium Hydride and Exploration of its Reactivity with Organic Functional Groups. Tandem, Selective and Partial Reductions of Halo-nitriles*
Jaime Z. Saavedra, Panathda Bayrasy, Angel Resendez, Bakthan Singaram, University of California Santa Cruz, Santa Cruz, CA
- P-15 *Recognition of Sugar Alcohols Using A Fluorescent Sensor Based on Boronic Acid Appended Bipyridinium Salts*
Angel Resendez, Kelsey Clarke, Bakthan Singaram University of California Santa Cruz, Santa Cruz, CA

- P-16 *Supramolecular Assembly of Tris(1-pyrazolyl)borate and Related Systems*
Patrick O. Shipman, Cheng-Zhong Cui, Yang Qin, John B. Sheridan and
 Frieder Jäkle, Rutgers University Newark, Newark, NJ
- P-17 *1,3-Azaborines: Synthesis, Characterization and Reactivity Studies*
Senmiao Xu, Lev N. Zakharov, Shih-Yuan Liu
 University of Oregon, Eugene, OR
- P-18 *Diastereoselective Protocols for Boron Based Acid Aldols of 3,3,3-Trifluoropropanoic acid*
Barnabas Ottoo, P. V. Ramachandran, Purdue Univ., West Lafayette, IN
- P-19 *Controlling diastereoselectivity in the boron-mediated aldol reactions of phenylacetates*
Prem B. Chanda, P. V. Ramachandran. Purdue Univ., West Lafayette, IN
- P-20 *Substituted tetrahydrofurans via tandem allyl/crotyl/ alkoxyallylboration-hydroboration-iodination-cyclization*
Pravin D. Gagare, Hari N. G. Nair, P. V. Ramachandran
 Purdue University, West Lafayette, IN

3:30-4:00

Coffee Break: Stewart Center 306

5:00 pm

Depart to Lake Freeman, Monticello, IN
 Bus will pick up in front of Purdue Memorial Union on Grant Street

6:30-9:30

Madam Carroll Cruise and dinner (for registered participants and invitees only)
 Live Music: Scott Pazera Trio

Once in a lifetime

The transit of Venus happens from a little after 6 pm until sunset on June 5, 2012. It isn't a great spectacle; since Venus will cover only 1/30 the diameter of the sun, but it should be visible through any break in the clouds. This is a historically significant astronomical event, originally used to estimate the size of the solar system. The next one will occur in 2117. The BORAM committee is excited that this once in a lifetime event occurs during the conference.

9:30-

Return to Purdue

Wednesday, June 06, 2012

Stewart Center 306

7:00-8:20 Registration/Breakfast

Stewart Center 302

Session VII Chair: Paul Jellis

- 8:30-9:00 O-21 *Conjugated Organoborane Polymers of Controlled Architecture*
Frieder Jäkle, Pangkuan Chen, Frank Pammer
Rutgers University Newark, Newark, NJ
- 9:00-9:20 O-22 *Catalytic chemical vapor deposition of boron nitride nanotubes and nanosheets from molecular precursors*
Shahana Chatterjee, Myung Jong Kim, Zhengtang Luo, Muharrem Acerce, Douglas M. Yates, Dmitri N. Zakharov, Seung Min Kim, Eric A. Stach, A. T. Charlie Johnson, Benji Maruyama, Larry G. Sneddon University of Pennsylvania, Philadelphia, PA
- 9:20-9:40 O-23 A Single-Component Liquid-Phase Hydrogen Storage Material
Wei Luo, Patrick G. Campbell, Lev N. Zakharov, Shih-Yuan Liu, University of Oregon, Eugene, OR
- 9:40-10:00 O-24 *Synthesis of N3-Substituted Carboranyl Thymidine Bioconjugates and their Evaluation as Substrates of Recombinant Human Thymidine Kinase1*
Hitesh K. Agarwal, Elena Sjuvarsson, Staffan Eriksson, Michael V. Darbya, and Werner Tjarks
The Ohio State University, Columbus, OH
- 10:00-10:30 Coffee Break: Stewart Center 306
- #### Session VIII Chair: M. Periasamy
- 10:30-11:00 O-25 *Copper-catalyzed Transformations of Dodecaborates*
Joel A. Dopke, Daniel S. Jaremko, Jennifer L. Meloche, Hillary L. Beeckman, Alejandro J. Ramirez
Alma College, Alma, MI
- 11:00-11:30 O-26 *Synthesis of Boronodeoxyribose Nucleoside Analogs*
Donald S. Matteson, Byung Ju Kim, Jinhua Zhang
Washington State University, Pullman, WA

11:30-12:00 O-27 *Reaction of Pinacolborane with Organic halides Mediated by Magnesium Under Ambient Grignard and Barbier Conditions*
Bakthan Singaram, University of California, Santa Cruz, CA

12:00-1:30 Lunch: South Ball Room, Purdue Memorial Union

Session IX **Chair: Matthias Wagner**

1:30-2:00 O-28 *Rapid and Simple Estimation of the Regioselectivity of Trialkylboranes by Complexation Using Boron NMR Chemical Shifts*
Thomas E. Cole, San Diego State University, San Diego, CA

2:00-2:20 O-29 *The roles of dihydrogen bonds in amine borane chemistry*
Xuenian Chen, Hima K. Lingam, Ji-Cheng Zhao, Sheldon, G. Shore
The Ohio State University, Columbus, OH

2:20-2:40 O-30 *Highly diastereoselective synthesis of (Z)-trisubstituted alkenes containing phenyl and p-methoxyphenyl moieties*
Narayan G. Bhat, and Eulalio Rodriguez
University of Texas-Pan American, Edinburg, TX

2:40-3:00 O-31 *Synthesis and Characterization of a Novel p-n Type Diblock Copolymer and Copolymer Fragments with P3HT as the p-Type and an Organoborane Polymer as the n-Type Polymer*
Diane Hinkens, Mark Tapsak, University of Bloomsburg, Bloomsburg, PA

3:00-3:30 Coffee Break: Stewart Center 306

Session X **Chair: Sundargopal Ghosh**

3:30-4:00 O-32 *Boron-containing heteroarotinooids as novel chemical probes to study Retinoic Acid signaling pathways*
Bhaskar C. Das, Todd Evans, The Weill Cornell Medical College, New York

4:00-4:20 O-33 *Photochemical cage closure reaction verses thermal isomerization pathways of a nido-6-manganadecaborane: [nido-6-(CO)₃-6-MnB₉H₁₃NMe₄]*
Pei Ma, James T Spencer, Syracuse University, Syracuse, NY

4:20-4:40 O-34 *Benzoxaboroles, a New Privileged Structure for Medicinal Chemistry*
Vincent Hernandez, Anacor Pharmaceuticals, Palo Alto, CA

- 4:40-5:00 O-35 *Highly Alpha-selective Syn- and Anti- Boron-Mediated Aldol Reactions of 1,3-butadienoates with Aldehydes*
Daniel Nicponski, Debarshi Pratihar, Bomi Kim, P. V. Ramachandran,
Purdue University, West Lafayette, IN
- 5:00-5:30 O-36 *Semi synthetic production of potential enantiomerically pure molecules employing Boranes and Borohydride Reagents*
I. Ibnusaud, H. Simimole, Divya S. Nair and K. C. SachinRaj
Mahatma Gandhi University, Kottayam, India

BORAM XIII Banquet and Award Ceremony (for registered participants and invitees only)

Buchanan Suite, Ross-Ade Stadium

- 6:00 and 6:20 pm Bus will pick up in front of Purdue Memorial Union on Grant Street
- 6:30-7:30 *Social Hour*
- 7:30-8:30 *Dinner*
- 8:30-9:00 **BORAM PIONEER AWARD** Presentation
- 9:00-9:30 Boron in the Americas Award Presentation

HEBERT C. BROWN BIRTH CENTENNIAL

Thursday, June 07, 2012

Stewart Center 306

7:00-8:20 Registration/Breakfast

Stewart Center 302

8:20-8:30 *Introductory Remarks*
Prof. Jeffrey T. Roberts
Frederick L. Hovde Dean, College of Science, Purdue University

Session XI Chair: Bakthan Singaram

8:30-9:10 O-37 *Asymmetric Hydroboration via the 9-BBDs: Would HCB Approve?*
John A. Soderquist, University of Puerto Rico

9:10-9:50 O-38 *Isotope Incorporation Using Organoboranes*
George W. Kabalka, Murthy Akula, Li Yong, Min-Liang Yao, University of Tennessee, Knoxville, TN

9:50-10:20 Coffee Break: Stewart Center 306

Session XII Chair: Navalkishore Joshi

10:20-11:00 O-39 *Nano-structured Metal Skelton Catalyst for Organic Synthesis*
Yoshinori Yamamoto
Tohoku University, Sendai 980-8577, Japan

11:00-11:40 O-40 *Highly Enantioselective Synthesis of Chiral Allenes*
Mariappan Periasamy, N. Sanjeevakumar, P. Obula Reddy,
Manasi Dalai and Gurubrahamam Ramani
University of Hyderabad, Hyderabad, India

11:40-12:20 O-41 *Developments in Methylalkylboranes – Solutions to Failed Organoborane Reactions*
Thomas E. Cole, San Diego State University, San Diego, CA

12:20-1:30 Lunch: South Ball Room, Purdue Memorial Union

Session XIII**Chair: Surendra Kulkarni**

- 1:30-2:10 O-42 *The Hydroboration of Enamines*
Christian T. Goralski, CTG Consulting, LLC, Midland, Michigan
- 2:10-2:50 O-43 *Organic Synthesis Using Baylis-Hillman Adducts: Development of Simple Methodologies for Obtaining Heterocyclic Frameworks of Medicinal Relevance*
Deevi Basavaiah, University of Hyderabad, Hyderabad, India
- 2:50-3:20 Coffee Break: Stewart Center 306

Session XIV**Chair: P. V. Ramachandran**

- 3:20-4:00 O-44 *Organic Light Emitting Diode (OLED): A Game-Changing Technology Revolutionizing the World of Displays and Lighting*
Kris Krishnamurthy, Scientific Advisor and Business Consultant, Pennfield, NY
- 4:00-5:00 **Herbert C. Brown Lectures**
O-45 *ZACA – LyCA – Cross Coupling Cascade for Catalytic Asymmetric Synthesis of Enantiomerically Pure Compounds of Feeble Chirality*
Ei-ichi Negishi, Purdue University, West Lafayette, IN
- 5:10-5:30 Dedication of Herbert C. Brown display in WTHR second floor
Ei-ichi Negishi and **Akira Suzuki**
- 5:30-7:00 *Reception and exhibit viewing of Herbert C. Brown: A Nobel Laureate's Life and Legacy*
Virginia Kelly Karnes Archives and Special Collections Research Center
Fourth Floor of the HSSE Library, Stewart Center
- 7:30-9:00 Dinner (by invitation only)

Friday, June 08, 2012

Stewart Center 306

7:00-8:20 Breakfast

Stewart Center 302

Session XV Chair: Christian T. Goralski

8:30-9:10 O-46 *Boranes: Excellent Reagents for Commercial Pharmaceutical Synthesis*
Karl Matos, BASF Corporation, Evans City, PA

9:10-9:50 O-47 *Orally Bioavailable, Nonsteroidal MR Antagonist LY2180176 for the Treatment of Hypertension*
Prabhakar K. Jadhav, Eli Lilly and Co., Indianapolis, IN

9:50-10:20 Coffee Break: Stewart Center 306

Session XVI Chair: Deevi Basavaiah

10:20-11:00 O-48 *Our Explorations in Asymmetric Catalysis, the Pinacol Story*
Navalkishore N. Joshi, National Chemical Laboratory, Pune, India

11:00-11:40 O-49 *Design and Synthesis of Plastic Optical Fiber for Local Area Network*
Yoshiyuki Okamoto, Polytechnic Institute NYU, Brooklyn, NY

11:40-12:20 O-50 *Synthesis of Bowl- and Basket-Shaped Fullerene Fragments via Benzannulated Enyne-Allenes*
Kung K. Wang, West Virginia University, Morgantown, WV

12:20-1:30 Lunch: South Ball Room, Purdue Memorial Union

Session XVII Chair: Ashok Gupta

1:30-2:10 O-51 *Transition from Chemistry to Business: Following HCB's Approach!*
Surendra U. Kulkarni, SABIC Technology Center, Bangalore, India

2:10-2:50 O-52 *Novel Chiral Switching Ligands: Application in the synthesis of opposite Enantiomers*
Srinivasan Narasimhan, Asthagiri Herbal Research Foundation, Perungudi, Chennai, India

2:50-3:20 Coffee Break: Stewart Center 306

Session XVIII

Chair: S. Krishnamurthy

- 3:20-4:00 O-53 *Mayapple – source to anti-cancer drugs*
Sanjay V. Malhotra, National Cancer Institute, Frederick, MD
- 0-4:00-4:40 O-54 *Highly diastereoselective synthesis of both (Z)-and (E)-trisubstituted alkenes containing phenyl and tolyl moieties*
Narayan G. Bhat, Lillian Duran, and Benjamin Guzman
University of Texas-Pan American, Edinburg, TX
- 4:40-5:20 O-55 *Sweetness and Light: Continuous Glucose Sensing with a Fluorescent Thin Film Hydrogel*
Bakthan Singaram, University of California Santa Cruz, CA
- 5:20 Concluding Remarks

29th H. C. Brown Lectures Banquet (by invitation only)

South Ball Room, Purdue Memorial Union

- 6:30-7:00 *Social Hour*
Live Music: Scott Pazera Trio
- 7:00-8:00 *Dinner*
- 8:00- **Remembering HCB by Brownians**

**THE TWENTY NINTH
HERBERT C. BROWN LECTURES IN ORGANIC CHEMISTRY**

Saturday, June 09, 2012

Stewart Center 306

7:00-8:30 Breakfast

Stewart Center 306

9:00-9:10 *Introductory Remarks*
Prof. Paul Shepson, Head, Department of Chemistry, Purdue University

9:10-10:10 O-56 *Boron: A unique element for orchestrating stereoselective transformations*
Varinder Aggarwal, University of Bristol, UK
(Chair: Mark A. Lipton)

10:10-10:50 Coffee Break and Poster Session: Stewart Center 306

11:00-12:00 O-57 *Iron-, Cobalt- and Palladium-Catalyzed Coupling Reactions. Application to the Synthesis of Complex Molecules*
Janine Cossy, ESPCI ParisTech, Paris, France
(Chair: Arun K. Ghosh)

12:00-1:30 Lunch: South Ball Room, Purdue Memorial Union

1:30-1:50 O-58 *Title TBA*
Herbert C. Brown Organic Graduate Student Research Award Winner I

1:50-2:10 O-59 *Title TBA*
Herbert C. Brown Organic Graduate Student Research Award Winner II

2:10-3:10 O-60 *Cycloadditions in Heterocycle and Alkaloid Synthesis*
Peter Wipf, University of Pittsburgh, PA
(Chair: Alex Wei)

3:10-3:40 Coffee Break: Stewart Center 306

3:40-4:40 O-61 *Cross-Coupling Reactions of Organoboranes: An Easy Way for Carbon-Carbon Bonding*
Akira Suzuki, Hokkaido University, Sapporo, Japan
(Chair: P. V. Ramachandran)

4:40-4:45 Closing Remarks