Welcome from the Director

I would like to welcome all of you to the Rimrock Resort in Banff, Alberta and thank you for taking the time to participate in our 3rd Annual Strategic Retreat. It has been an exciting year for the Biorefining Conversions Network (BCN) and we are looking forward to continued growth and the formation of new R&D partnerships to develop novel, commercially viable technologies to advance Alberta’s bioindustrial sector. We are optimistic that the increase in global economic activity in this sector over the past year is a positive indication that it will continue to grow in the future.

During this year’s retreat entitled “Bioeconomy 2030: Prospects & Potential”, we will critically explore the future of the bioeconomy and discuss what steps need to be taken to ensure that Alberta is well positioned to be a global leader in this sector. Alberta has a great opportunity to leverage existing resources and infrastructure to build a thriving bioeconomy that not only compliments but adds-value to existing industries such as energy, agriculture, and forestry. This strategy would help sustain Alberta’s economic prosperity over many generations as well as illustrate our commitment to responsible resource development and protection of our natural environment.

We are pleased about this year’s retreat program and are excited to have excellent speakers to examine some of the “hot-topics” in the sector. There will be a discussion period after each of the sessions and panels and we encourage you to participate in what’s sure to be provocative discourse and stimulating debate. As with all of our strategic retreats, we hope that you will take the opportunity to network and develop new partnerships.

I look forward to catching up with all of you and meeting those that I have not yet had the opportunity to meet. I wish everyone an enjoyable and productive retreat.

Sincerely,

Dr. David Bressler
Director, Biorefining Conversions Network
Associate Professor, Agricultural, Food and Nutritional Science
University of Alberta
Message from the Minister
Advanced Education and Technology

It’s my pleasure to welcome you to the Biorefining Conversions Network (BCN) 3rd annual retreat.

The theme of this year’s retreat – Bioeconomy 2030: Prospects and Potential – is very well chosen. As Alberta’s growing bioindustry takes shape, now is the time for clear and decisive planning to ensure our future success in the global marketplace. Alberta Innovates – Bio Solutions, in cooperation with key partners like the BCN, is developing a strategic plan to support the sector over the next 20 years. Thanks to this collaboration, we have taken an important step toward ensuring our future success.

This retreat is the next step. Your participation and contributions over the next three days will help make the strategic plan a reality. Given the winning combination of Alberta’s abundance of natural resources, combined with Albertans’ can-do attitude and desire for innovation, I know we can grow our traditional agriculture and forest industries to contribute to our economy, all the while ensuring that they grow in an economically and environmentally sustainable way. I also believe that we can build a bioeconomy that rivals anything found anywhere else in the world.

All the best for a productive retreat.

Greg Weadick
Minister
Welcome from President Indira Samarasekera

Welcome to the third annual Biorefining Conversions Network (BCN) Strategic Retreat. This year's theme, entitled "Bioeconomy 2030: Prospects and Potential", promises to ignite discussion around the future of Alberta's bioindustry and the role that research will play in helping us define our role moving forward.

The University of Alberta is proud to support provincial research in the area of biorefining and biomass conversion technologies by serving as home to the BCN. The BCN fosters innovation and research by encouraging a cross-fertilization of ideas and techniques from different fields of study. By bringing together expertise from a diverse range of disciplines such as agriculture, forestry, engineering, chemistry, biochemistry, genetics, physics, material science, and food science, Alberta, is poised to take a leadership role in helping to address growing global energy demands.

I hope that you find the next three days to be engaging and rewarding as you make connections with other members of academia, government and industry, and discuss initiatives to advance the growth of Alberta's bioindustry.

Sincerely,

Indira V. Samarasekera, O.C.
President and Vice-Chancellor
Bioeconomy 2030: Prospects & Potential

3RD ANNUAL BIOREFINING CONVERSIONS NETWORK STRATEGIC RETREAT

November 30 – December 2, 2011
Rimrock Resort & Hotel
Banff, Alberta, Canada

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ACKNOWLEDGEMENTS.

The BCN would like to thank the following people and organizations for making this 2011 Strategic Retreat possible:

- **Our primary funder and the main funding supporter of this event**

  [Image of Alberta Innovates BioSolutions]

  Our primary funder and the main funding supporter of this event.

- **Our other event sponsors and supporting organizations**

  **Gold ($5,000 - 9,999)**

  [Image of NSERC]

  NSERC is a federal agency that helps make Canada a country of discoverers and innovators for all Canadians. The agency supports some 30,000 postsecondary students and postdoctoral fellows in their advanced studies. NSERC promotes discovery by funding more than 12,000 professors every year and fosters innovation by encouraging more than 1,500 Canadian companies to participate and invest in postsecondary research projects.

  [Image of BioAlberta]

  BioAlberta has been the central voice and organizing hub for the life sciences industry in Alberta since 1999 and actively supports the vision of:

  "A thriving and globally competitive life science industry that fuels key sectors of Alberta’s economy."

  It is a private, not-for-profit industry association representing more than 140 members of Alberta’s steadily increasing life science industry’s producers, users and supporters in the province. These member companies operate in the specialized sectors such as health biotechnology and pharmaceuticals; medical technology and devices; agricultural biotechnology; natural health products and nutraceuticals; environmental biotechnology; and, industrial biotechnology and bioprocessing.

  BioAlberta activities are focused on advocacy, promotion and proactively facilitating the growth of Alberta’s life sciences industry. The association provides attentive, proactive and timely services and programs to member organizations. Whether it is a cost savings of a purchasing program, a marketing campaign, a publication, an educational session, or an advocacy campaign, BioAlberta expands members’ dollars and reach.
Silver ($1,001 – 4,999)

- All of our speakers, panellists, and moderators for agreeing to participate in this event and for sharing their knowledge and expertise
- Our many event volunteers for their time and assistance helping the retreat run as smoothly as possible
- The Rimrock Resort and Hotel staff for their event coordination support, willingness to accommodate, and attention to detail
Retreat Purpose and Objectives.

History

Each fall the BCN organizes a strategic retreat that is typically held in the Alberta Rockies. The overarching goal of the retreat is to bring together stakeholders to discuss strategies to advance Alberta’s bioeconomy with a focus on developing and commercializing biomass conversion technologies. Attendees include senior members of industry, government, funding and finance agencies, research organizations, and academia who have an interest in learning about bioindustrial opportunities in Alberta and developing partnerships to facilitate growth of the sector.

The theme for the BCN’s inaugural meeting held in November 2009 in Jasper, AB was “Defining Technology Development Initiatives in Alberta’s Bioindustry”. The goal of the retreat was to create awareness for the BCN and Alberta’s bioindustrial sector by bringing together industry, academia, and government representatives who will play a critical role in Alberta’s burgeoning bioindustry from different sectors including oil and gas, petrochemical, forestry, and agriculture. The outcomes of this meeting were extremely positive and the BCN was successful in establishing itself as a key network in the area of biomass conversion as well as linking together researchers with industry and government partners.

The 2nd Annual BCN Strategic Retreat, held in November 2010 in Lake Louise, AB, was opened by the Honourable Doug Homer, Deputy Premier of Alberta and (then) Minister of Advanced Education and Technology. The event highlighted the BCN’s refined vision to develop advanced technologies to convert biomass to “drop-in” chemicals and fuels compatible with both traditional and emerging industries. Expert speakers from industry, academia, government, and consulting companies provided an informed look at the biomass conversion opportunities and challenges in Alberta and the progress of the BCN’s current research projects was showcased. Feedback from retreat attendees was overwhelmingly positive with many reporting that they made great connections, many of which have subsequently evolved into formal partnerships.

Future

The 2011 BCN retreat, entitled “Bioeconomy 2030: Prospects & Potential”, will explore the evolution of the bioindustrial sector over the next two decades within the context of the BCN’s target research areas; biomass conversions to produce drop-in chemicals and fuels via thermal processing, synthetic biology, fermentation, and green chemistry. The intent of the retreat is to identify sustainable bioindustrial opportunities and discuss how to capitalize on these opportunities as well as outline how the BCN, through creation multidisciplinary R&D teams for development and refinement of technologies, can positively impact the advancement of this sector.
Program Format & Objectives

The intent of the retreat is to stimulate intelligent debate and discussion about the potential future for Alberta’s bioeconomy with focus on the role of research, the BCN, and our affiliates as well as how to proactively capitalize on biomass utilization opportunities in Alberta and promote local commercialization of technologies developed at Alberta R&D institutions/facilities.

The BCN is pleased to welcome the Honourable Greg Weadick, Minister of Advanced Education and Technology, to open this year’s retreat. The participation of Minister Weadick in 2011 and former Deputy Premier Doug Horner in 2010 is indicative of high-level government support for the BCN’s vision of a robust bioindustrial sector. The formal retreat program will support this goal through several sessions and panels featuring experts from industry, government and government corporations, consulting firms, and academic institutions including the University of Alberta. There will be ample opportunity for networking during the receptions, meals, and breaks.

Day 1 of the retreat will begin with a Welcome Address from the Honourable Greg Weadick, Minister of Advanced Education & Technology followed by comments from Jason Krips, Assistant Deputy Minister of Industry Development and Food Safety for Alberta Agriculture and Rural Development, and Dr. John Kennelly, Dean of the University of Alberta’s Faculty of Agriculture, Life and Environmental Sciences. The remainder of the day will include a panel discussion involving members of three Alberta Innovates Corporations, which will provide an update on the Alberta bioindustry and related activities of the Corporations, followed by two sessions moderated by the BCN Theme Leads of Biomass Pre-Processing and Biological Conversions, respectively. The first session will explore the reality of being able to supply a biorefinery while the second session will look at advancements in the synthetic biology field and its potential impact on the future economy. A select group of graduate students and post-docs working on BCN research projects will deliver 5-minute oral presentations during the lunch period as part of a competition designed to support their involvement in the retreat. The entire portfolio of BCN research projects will be highlighted during an evening poster reception where project Principle Investigators will present their research achievements and be available for discussion. Graduate students and post-docs that are not participants in the oral competition will take part in a poster competition held at the same time and place as the general poster reception.

Day 2 of the retreat will also include one panel and two sessions. The panel will take a critical look the future of biofuels in regard to markets, feedstock, technology, financing and research. The two sessions will be moderated by the BCN theme leads and will focus on topics pertinent to the BCN’s Chemical Conversions and Thermal Conversions research themes. The Chemical Conversion session will look at the feasibility of integrating renewable chemical streams with conventional chemical streams and the Thermal Conversion session will investigate why developments in high temperature technologies appear to be stagnant compared to other conversion mechanisms and whether or not there is potential for new step change innovations in this area. The lunch period will feature a special seminar from Dr. Marie D’Iorio, Acting Director of the National Institute for Nanotechnology.
## RETREAT AGENDA

<table>
<thead>
<tr>
<th>WEDNESDAY, NOVEMBER 30, 2011</th>
<th>Time and Location</th>
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<tbody>
<tr>
<td><strong>Registration</strong></td>
<td>5:00 pm – 8:00 pm</td>
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<td></td>
<td>Box Office</td>
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<tr>
<td><strong>Welcome Reception – <em>Food Sponsored by BioAlberta</em></strong></td>
<td>7:00 pm – 9:00 pm</td>
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<td>Wildrose Prefunction Space</td>
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<tr>
<th>THURSDAY, DECEMBER 1, 2011</th>
<th>Time and Location</th>
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<tr>
<td><strong>Registration</strong></td>
<td>7:00 am – 12:00 pm</td>
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<td></td>
<td>Box Office</td>
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<tr>
<td><strong>Breakfast</strong></td>
<td>7:00 am – 8:00 am</td>
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<td>Salon C</td>
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<tr>
<td><strong>Welcome Address and Opening Comments</strong></td>
<td>8:00 am – 8:40 am</td>
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<td></td>
<td>Salon AB</td>
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**DR. DAVID BRESSLER**  
Director, Biorefining Conversions Network and Associate Professor of Agricultural, Food & Nutritional Science, University of Alberta

**HONOURABLE GREG WEADICK**  
Minister of Advanced Education and Technology, Government of Alberta

**JASON KRIPS**  
Assistant Deputy Minister, Industry Development and Food Safety, Alberta Agriculture and Rural Development, Government of Alberta

**DR. JOHN KENNELLY**  
Dean, Agricultural, Life & Environmental Science, University of Alberta

### Panel 1 - Alberta Bioeconomy: Where are we today? Where are we going?

**Moderator: Dr. Stan Blade**

**DR. STAN BLADE**  
CEO, Alberta Innovates Bio Solutions

**RICHARD WAYKEN**  
General Manager of Bio and Industrial Technologies Division, Alberta Innovates Technology Futures

**DR. SURINDAR SINGH**  
Executive Director, Alberta Innovates Energy & Environment Solutions

### Session 1 - Reality Check: At what scale can we supply biorefineries by 2030?

**Moderator: Dr. Amit Kumar**

**DR. AMIT KUMAR**  
BCN Theme Lead, Biomass Pre-Processing and Associate Professor of Mechanical Engineering, University of Alberta

**Energy Break – *Sponsored by the Faculty of Agriculture, Life & Environmental Sciences, University of Alberta***

**DR. BILL ORTS**  
Research Leader, Bioproduct Chemistry & Engineering, Agricultural Research Service, United States Department of Agriculture

**PAUL KAMP**  
North American Project Sales and Support, Inbicon A/S

**Discussion Period**  
12:00 pm – 12:30 pm

### Lunch and Graduate Student/ Post-Doc Competition

**Session 2 – More than just a pipe dream? The enabling role of synthetic biology in the future bioeconomy.**

**Moderator: Dr. Mike Ellison**

**DR. MIKE ELLISON**  
BCN Theme Lead, Biological Conversions and Professor of Biochemistry, University of Alberta

**STEPHEN ALDRICH**  
President, Bio Economic Research Associates

### Energy Break - *Sponsored by the Faculty of Agriculture, Life & Environmental Sciences, University of Alberta***

**3:40 pm – 4:10 pm**

**Wildrose Prefunction Space**
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<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Discussion Period</td>
<td>4:10 pm – 4:50 pm</td>
<td>Wildrose Prefunction Space</td>
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<tr>
<td>**A cash bar will be available at the Welcome Reception and Poster</td>
<td>4:50 pm – 5:20 pm</td>
<td>Wildrose</td>
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<tr>
<td>**Wine will be served at tables and a cash bar will be available at</td>
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<td>Salon C</td>
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<tr>
<td>Break</td>
<td>5:20 pm – 6:00 pm</td>
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<tr>
<td>Poster Reception – Featuring all of the BCN Research Projects and a</td>
<td>6:00 pm – 7:30 pm</td>
<td>Wildrose</td>
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<tr>
<td>Graduate Student/Post-Doc Poster Competition</td>
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<td>Valoroso</td>
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<tr>
<td>Banquet Dinner</td>
<td>7:30 pm – 9:00 pm</td>
<td>Salon C</td>
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<tr>
<td><strong>FRIDAY, DECEMBER 2, 2011</strong></td>
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<tr>
<td>Breakfast – Sponsored by NSERC</td>
<td>7:00 am – 8:00 am</td>
<td>Wildrose</td>
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<tr>
<td>Panel 2 - On fire or burning out: What does the future hold for biofuels?</td>
<td>8:00 am – 9:30 am</td>
<td>Wildrose Prefunction Space</td>
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<tr>
<td>Moderator: Kelly Maher</td>
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<tr>
<td>DR. VIJAY SINGH</td>
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<tr>
<td>Associate Director of Engineering, Center for Advanced BioEnergy Research, University of Illinois</td>
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<td>JEFF PASSMORE</td>
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<td>President, Passmore Group Inc.</td>
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<td>DOUG C. CAMERON</td>
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<td>Founder &amp; Managing Director, Alberti Advisors</td>
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<tr>
<td>Energy Break - Sponsored by the Faculty of Agriculture, Life &amp;</td>
<td>9:30 am – 10:00 am</td>
<td>Wildrose Prefunction Space</td>
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<td>Environmental Sciences, University of Alberta</td>
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<td>Moderator: Dr. Fred West</td>
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<tr>
<td>DR. FRED WEST</td>
<td>10:00 am – 12:30 pm</td>
<td>Wildrose Prefunction Space</td>
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<tr>
<td>BCN Theme Lead, Chemical Conversions and Professor of Chemistry,</td>
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<tr>
<td>University of Alberta</td>
<td>10:00 am – 10:40 am</td>
<td>Salon AB</td>
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<tr>
<td>DR. MANOJ KUMAR</td>
<td>10:40 am – 11:20 am</td>
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<tr>
<td>Director of Science &amp; Technology, Global New Business Development,</td>
<td>11:20 am – 12:00 pm</td>
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<td>DSM White Biotechnology</td>
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<tr>
<td>DR. STEPHANIE CLENDENNEN</td>
<td>12:00 am – 12:30 pm</td>
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<tr>
<td>Research Associate and Biotechnology Program Leader, Eastman Chemical</td>
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<td>Company</td>
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<tr>
<td>Discussion Period</td>
<td>12:00 pm – 12:30 pm</td>
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<tr>
<td>Lunch - Graduate Student/Post-Doc Competition Awards</td>
<td>12:30 pm – 1:30 pm</td>
<td>Salon C</td>
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<td>LORI SHEREMETA</td>
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<tr>
<td>Advisor, Strategy &amp; Policy, National Institute for Nanotechnology,</td>
<td>1:30 pm – 4:00 pm</td>
<td>Wildrose</td>
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<td>National Research Council</td>
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<td>Session 4 - Can you teach an old dog new tricks: What potential</td>
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<td>remains for new innovations in thermal conversions?</td>
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<td>Moderator: Dr. Greg Dechaine</td>
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<tr>
<td>DR. GREG DECHAINE</td>
<td>1:30 pm – 2:10 pm</td>
<td>Wildrose Prefunction Space</td>
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<tr>
<td>BCN Theme Lead, Thermal Conversions and Assistant Professor of</td>
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<tr>
<td>Chemical and Materials Engineering, University of Alberta</td>
<td>2:10 pm – 2:50 pm</td>
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<tr>
<td>DR. ECKHARD DINJUS</td>
<td>2:50 pm – 3:30 pm</td>
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<tr>
<td>Institute Director and Professor of Chemical-Physical Processing,</td>
<td>3:30 pm – 4:00 pm</td>
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<tr>
<td>Karlsruhe Institute for Technology</td>
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<td>DR. ANTHONY ANYIA</td>
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<tr>
<td>Manager, Bioresource Technologies, Alberta Innovates Technology</td>
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<tr>
<td>Futures (AITF)</td>
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<tr>
<td>Discussion Period</td>
<td>3:30 pm – 4:00 pm</td>
<td>Wildrose Prefunction Space</td>
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<tr>
<td>Closing Comments</td>
<td>4:00 pm – 4:15 pm</td>
<td>Wildrose Prefunction Space</td>
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END OF FORMAL RETREAT PROGRAM

*A cash bar will be available at the Welcome Reception and Poster Reception and three complimentary drink tickets will be provided to each delegate for use at either of the two receptions

**Wine will be served at tables and a cash bar will be available at the Banquet Dinner
BCN MANAGEMENT.

DAVID C. BRESSLER
DIRECTOR, BIOREFINING CONVERSIONS NETWORK
ASSOCIATE PROFESSOR, DEPARTMENT OF AGRICULTURAL, FOOD AND NUTRITIONAL SCIENCE
FACULTY OF AGRICULTURAL, LIFE AND ENVIRONMENTAL SCIENCES, UNIVERSITY OF ALBERTA

Dr. David Bressler is the Director of the BCN and the principal investigator on 4 BCN research projects spanning the Biological, Chemical, and Thermal Conversions themes. He is also a collaborator on 6 BCN research projects. Dr. Bressler earned his Ph.D. in Microbiology and Cell Biotechnology from the University of Alberta. He is jointly appointed with the Faculty of Agricultural, Life & Environmental Sciences where he is an Associate Professor, and the Bio-Industrial Technologies Division of Alberta Agriculture and Rural Development.

Dr. Bressler's general area of research is the industrial application of chemical, thermal, and biological systems for the catalytic conversion of conventional agricultural products to platform chemicals, fuels, and value-added commodities. The recognition of novel mechanisms and the optimization of catalytic biochemical pathways are of special interest.

His research program is unique in that it utilizes a multidisciplinary approach combining industrial microbiology, biotechnology, and analytical chemistry with previous experience in petrochemical conversions and upgrading in conjunction with scale-up and engineering support by the Bio-Industrial Technologies Division of Alberta Agriculture and Rural Development. Much of the biological work involves production, modification, purification, and design of biocatalytic systems.

As Director of the BCN, Dr. Bressler is a strong advocate for taking an integrated, multidisciplinary approach to developing novel, commercializable technologies that will cultivate Alberta’s bioindustrial sector.

KELLY MAHER
ASSISTANT DIRECTOR, BIOREFINING CONVERSIONS NETWORK
UNIVERSITY OF ALBERTA

Kelly Maher earned her B.Sc. in Chemical Engineering and M.Sc. in Bioresource Engineering from the University of Alberta. Her thesis focussed on high-temperature conversion of lipid feedstock for the production of hydrocarbon-based biofuels and other platform chemicals.

From 2007-2008 Kelly worked as the Assistant Director of Engineering for Canadian Bioenergy where she was responsible for managing all aspects of the development of a global scale biodiesel facility in BC. Kelly returned to Alberta in 2009 where she accepted the position of Assistant Director of the BCN. Her responsibilities include strategic, extension, and political management of the BCN, identification of research and development funding opportunities, and preparation of collaborative agreements and proposals.
ANGE SCOTT
RESEARCH MANAGER, BIOREFINING CONVERSIONS NETWORK
UNIVERSITY OF ALBERTA

Ange Scott earned her B.Sc. in Microbiology (Honors) and M.Sc. in Microbiology and Biotechnology from the University of Alberta (U of A). Her graduate thesis focused on characterization of toxic compounds present in oil sands process-affected waters and examination of various chemical and biological remediation options.

After completing her graduate studies, Ange continued working in this area as a senior technologist and consultant before transitioning to a role in the Faculty of Agriculture, Life & Environmental Sciences at the U of A. She was originally recruited as Manager of the Biorefining Conversions and Fermentations Laboratory under the leadership of Dr. David Bressler and concurrently conducted research on novel pathways to biobutanol as part of a collaboration between Dr. Bressler and Dr. Mike Ellison (Department of Biochemistry, U of A). In July 2009 she accepted the position of Research Manager of the BCN. In this role Ange oversees public, academic, government and industry relations within the BCN. She also handles key communications, project management, and the daily business functions of the network.

In January 2012, Ange will be leaving the BCN to pursue her passion for travelling, taking a year-long hiatus in South America.

SHELLEY WILLIAMSON
RESEARCH MANAGER, BIOREFINING CONVERSIONS NETWORK
UNIVERSITY OF ALBERTA

Shelley Williamson joined the BCN in November of 2011. Shelley brings with her over 10 years of research administration experience at the University of Alberta, most recently with the School of Energy and the Environment where she was the Assistant Director. She will support the BCN in the role of Research Manager, taking over for Ange Scott who will be leaving in January 2012.

ALICIA BRADFORD
ADMINISTRATIVE ASSISTANT, BIOREFINING CONVERSIONS NETWORK
UNIVERSITY OF ALBERTA

Alicia Bradford joined the BCN in August of 2011. With over 6 years administrative experience and an extensive event planning background she provides administrative support to the BCN, including helping to plan and organize BCN hosted conferences such as the Annual BCN Strategic Retreat, project administration and general clerical duties.
AMIT KUMAR
THEME LEAD OF BIOMASS PRE-PROCESSING
ASSOCIATE PROFESSOR, MECHANICAL ENGINEERING, FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

Dr. Amit Kumar leads the Biomass Pre-processing theme of the BCN and is an Assistant Professor in the Department of Mechanical Engineering at the University of Alberta. He received an M.Eng. from the Asian Institute of Technology (Thailand) in energy technology, and a B.Sc. in Energy Engineering from the Indian Institute of Technology, India. Dr. Kumar earned his Ph.D. in Mechanical Engineering from the University of Alberta after completing his doctoral research in the area of utilization of biomass for power and liquid fuels. Dr. Kumar's current research interests include techno-economic assessment of bioenergy systems including biopower and biofuels, large scale biomass transport and logistics such as pipeline transport, simulation and modeling of biomass feedstock supply systems, greenhouse gas mitigation, and energy forecasting and planning. He has extensive experience in biomass energy studies and is widely published in the area of bioenergy and biofuels.

Dr. Kumar is currently working on a range of projects funded by various provincial and national agencies, industrial partners such as Weyerhaeuser and Highmark Renewables Inc., international partners such as Cluster Industrielle Biotechnologie (CLIB2021) (a consortium of more than 60 companies based in Germany), and the Town of Drayton Valley, Alberta. He serves as the Associate Editor of the Canadian Biosystems Engineering Journal and has established the Sustainable Energy Research Laboratory in the Dept. of Mechanical Engineering at the University of Alberta.

MICHAEL ELLISON
THEME LEAD OF BIOLOGICAL CONVERSIONS
PROFESSOR, BIOCHEMISTRY, FACULTY OF MEDICINE AND DENTISTRY
UNIVERSITY OF ALBERTA

Dr. Michael Ellison leads the Biological Conversions theme of the BCN and is a professor in the Department of Biochemistry at the University of Alberta. Dr. Ellison received his Ph.D. from the University of Toronto in 1983 for research focussed on chromosome structure. He spent the next six years at MIT developing accurate computational approaches for predicting the physical behaviour of bio-macromolecules. There his interests shifted toward understanding the ubiquitin system, an important cellular signalling pathway that formed the core of his research program at the University of Alberta from 1990 to 2003.

Dr. Ellison’s current focus is on synthetic biology, an emerging discipline that sits at the interface between biology and engineering. The goal of this new field is to produce modular biological circuits of increasing sophistication using well-understood molecular components that can be reliably assembled into novel and useful forms of artificial life. As the BCN’s Biological Conversions theme lead, his current efforts are directed toward the creation of microbial systems with the capacity to produce high value chemical feedstocks from provincially available sources of biomass.

Dr. Ellison continues to be a strong advocate for innovative science. He has served on the boards of Genome Prairie, the Alberta network for Proteomic Innovation, and has played a major role in bringing new technologies to the University of Alberta through two multi-million dollar investments from the Canada Foundation for Innovation. He is also actively engaged in the dissemination of synthetic biology to undergraduates with his involvement in iGEM, a student research competition held annually at MIT.
FREDRICK G. WEST  
THEME LEAD OF CHEMICAL CONVERSIONS  
PROFESSOR, DEPARTMENT OF CHEMISTRY, FACULTY OF SCIENCE  
UNIVERSITY OF ALBERTA

Dr. Fred West leads the Chemical Conversions theme of the BCN. He was born and raised in southern Arizona and received his undergraduate training (Chemistry with Honors and Summa cum Laude) at the University of Arizona in Tucson. While there he conducted research with Victor Hruby on conformationally restricted analogues of the peptide hormone oxytocin, and developed one of the first HPLC-based methods for amino acid analysis of peptide hydrolysates. Dr. West then moved to Madison, Wisconsin where he was an NSF Predoctoral Fellow at the University of Wisconsin in the labs of Professor Edwin Vedejs. His doctoral research concerned the generation of nonstabilized azomethine ylides using desilylation methods for application to the synthesis of pyrrolizidine alkaloids. He spent two years at Columbia University as an NIH Postdoctoral Fellow with Professor Gilbert Stork, working on radical cyclization-based approaches to the cardenolides.

Dr. West began his independent career at the University of Utah in 1988. Initially, his program focused on the use of pyran-4-one photochemistry for the rapid assembly of complex polycyclic skeletons, and the Stevens rearrangement of metallocarbene-derived ylides. Subsequent areas of interest have included the Nazarov cyclization, taxane synthesis and bioconjugate chemistry. In 2002, Dr. West moved to the University of Alberta where he is currently Professor of Chemistry and Chair of the Organic Division.

GREG DECHAINE  
THEME LEAD OF THERMAL CONVERSIONS  
ASSISTANT PROFESSOR, CHEMICAL & MATERIALS ENGINEERING, FACULTY OF ENGINEERING  
UNIVERSITY OF ALBERTA

Dr. Greg Dechaine recently joined the Department of Chemical and Materials Engineering at the University of Alberta as an assistant professor. He received a MASC in Chemical Engineering from the University of Waterloo (2004) where he studied and developed coated catalysts for catalytic distillation columns, and a PhD in Chemical Engineering from the University of Alberta (2010) where he studied the selective removal of vanadium from bitumen and asphaltenes. Prior to pursuing postgraduate studies, Dr. Dechaine spent 4 years in the fertilizer industry as a plant process engineer with Agrrium Inc., working with a variety of chemical processes including ammonia, nitric acid, ammonium nitrate, and most other fertilizer synthesis processes.

The unifying theme of Dr. Dechaine’s research is separation process engineering. Rather than specialize in a single technique and seek applications for it, the goal is to tackle difficult separation problems by selecting and optimizing the most suitable separation technique for each case. This requires a fluency in the various separation processes available to process engineers including distillation (conventional, catalytic/reactive, azeotropic/extractive), membrane separations, absorption/stripping, extraction, and filtration. The search for value added fuels and products from biomass precursors will undoubtedly spawn many interesting and challenging separation problems, hence Dr. Dechaine’s interest and involvement with the BCN.
HONORABLE GREG WEADICK
MINISTER OF ADVANCED EDUCATION & TECHNOLOGY
GOVERNMENT OF ALBERTA

Greg Weadick was elected to his first term as a Member of the Legislative Assembly for Lethbridge-West on March 3, 2008. On February 18, 2011, Mr. Weadick was appointed Minister of Advanced Education and Technology and a member of the Cabinet Policy Committee on the Economy.

Previously, Mr. Weadick served as Parliamentary Assistant to the Minister of Advanced Education and Technology. He has also served on the following committees:

- Special Standing Committee on Members' Services
- Standing Committee on the Economy
- Standing Committee on Public Accounts

He has deep roots in Lethbridge, being the fourth generation of his family to call the city home. He was among some of the first students at the University of Lethbridge's new west side campus, earning his bachelor of science in 1976 before beginning his career as a certified irrigation design consultant. He has also owned and operated several successful small businesses in Lethbridge and is currently president of Frontier Irrigation Ltd. and co-owner of Yardworks and Tileworks.

Mr. Weadick was first elected to Lethbridge city council in 1991 and continued to serve for nine years. As a member of council he helped guide the city’s pay-as-you-go strategy that put the city on firm financial ground. Mr. Weadick also served on provincial task forces on police funding and air transportation while on council.

During his 25-plus years of volunteer service in Lethbridge he helped found the Lethbridge Rotary Dragonboat Festival, which has gone on to become one of the most anticipated events of the year. He was the founding president of the Lethbridge Youth Foundation and 5th on 5th Youth Services, which has helped thousands of young people get their education back on track and become contributing members of society. He also helped promote the city as chairman of the Economic Development, Agriculture & Tourism Committee and as a member of the Downtown LA Board. He has served on the Lethbridge & District Exhibition Board and the Lethbridge Senior Friendly Committee, the police commission, and is a longtime Rotarian. As a businessman Mr. Weadick has long been associated with the Lethbridge and District Chamber of Commerce, including several years as a director.

He and his wife, Joanne, also a former alderman, have been married over 30 years. Their two children, Josh and Lauren, both attend the University of Lethbridge.

Government of Alberta
JASON KIRPS  
ASSISTANT DEPUTY MINISTER, INDUSTRY DEVELOPMENT & FOOD SAFETY  
ALBERTA AGRICULTURE AND RURAL DEVELOPMENT, GOVERNMENT OF ALBERTA

JASON KIRPS joined Alberta Agriculture and Rural Development in July 2008 as Assistant Deputy Minister (ADM) of Industry Development and Food Safety. In his role as ADM of this sector, Jason is responsible for working with agriculture and food businesses to develop and grow through value-added processing development, business development services, applied research and technology transfer. The sector also assures effective delivery of agriculture educational training, leadership and grant programs, as well as front-line client contact services for producers and industry clients through extension services and field offices. The sector works closely with industry and other levels of government to ensure public confidence in the safety of food products, administers the Animal Protection Act, and leads and coordinates the ministry’s work in implementing a traceability system that promotes both food safety assurance and animal health status.

Jason joined the Alberta Government in 2000 as the Legislative Manager with the Department of Government Services, and in 2004 he moved to the position of Director of Research and Analysis with the Policy Coordination Office of Executive Council. Jason also served as the Executive Assistant for the Minister of Agriculture and Rural Development from 2004-2006, and Executive Assistant for the Minister of Advanced Education and Technology from late 2006 - July 2008. Prior to joining the Alberta Government in 2000, Jason practiced law in a small law firm that focused on representing agriculture clients on legislative and industry policy issues, as well as planning law and environmental issues.

Jason was admitted to the Law Society of Alberta in 1997 and graduated from the University of Alberta Law School in 1996 and from the University of Alberta School of Business with a Bachelor of Commerce with Distinction in 1993. Jason is married, has two boys and is a runner, biker and a sporadic tri-athlete.

JOHN KENNELLY  
DEAN  
FACULTY OF AGRICULTURAL, LIFE & ENVIRONMENTAL SCIENCES, UNIVERSITY OF ALBERTA

JOHN J. Kennelly is currently serving his second term as Dean of the Faculty of Agricultural, Life & Environmental Sciences (ALES) at the University of Alberta. From 1997 to 2004, Dr. Kennelly served as Chair of the Department of Agricultural, Food and Nutritional Science. He obtained his PhD from the University of Alberta in 1980 and BSc (1st Class Honors) from University College Dublin in 1976. Dr. Kennelly joined the University of Alberta as Assistant Professor in 1980 and was promoted to Associate Professor in 1983 and to full Professor in 1987.

Dr. Kennelly was recently named a Fellow of the Agricultural Institute of Canada and he is also a Fellow of the Canadian Society of Animal Science and the International College of Nutrition. He has been recognized with a number of other awards that include the 2011 Distinguished Agrologist Award, the Arthur G. McCalla Professorship, the American Society of Animal Science Ruminant Nutrition Award, the Earl W. Crampton Award for Distinguished Service in Nutrition, the International College of Nutrition Sing Award, the Canadian Society of Animal Science Young Scientist Award, the Canadian Society of Animal Science Award for Excellence in Nutrition and Meat Science, the Canadian Society of Animal Science Award for Excellence in Genetics and Physiology and the Canadian Society of Animal Science Animal Industries Award in Extension and Public Service. Publications include over 150 refereed journal articles as well as numerous book chapters, conference proceedings, and extension articles.

Dr. Kennelly’s research has focussed on nutrition and lactation physiology. His research group have contributed to the understanding of the influence of nutrition and genetics on the composition of milk with particular emphasis on the role of nutrition in increasing milk fatty acids that have important health attributes. Dr Kennelly is a strong believer in connecting the university to the community and he has built excellent relationships with key industry and government partners. He considers his most significant outreach accomplishment to be the establishment of the Western Canadian Dairy Conference in the early 1980s. Today the conference attracts over 600 people annually to Red Deer and is recognized as having played a key role in positioning the dairy industry as a leader in the adoption of new technology over the past quarter century. One of Dr. Kennelly’s latest projects includes the creation of a Task Force looking into the future of Animal Agriculture in Canada within a global context, which he chairs. Dr. Kennelly has also served on the University of Alberta Senate with his term ending in June of 2011.
Dr. Stan Blade is the Chief Executive Officer of the Alberta Innovates – Bio Solutions Corporation (Al-Bio). The new Corporation will invest in innovation which delivers value to Alberta’s agriculture and forestry sectors, and to all Albertans. Al-Bio will work with all stakeholders in the research-development continuum to provide strategic leadership and investment to create prosperous and sustainable agriculture and forestry industries. The new Bio Solutions Corporation has established investment priorities in the areas of food for health, sustainable production, prions and bioindustrial innovation.

Dr. Blade is also an Adjunct Professor in the Faculty of Agriculture, Life and Environmental Sciences at the University of Alberta. Dr. Blade is trained as a plant breeder (Ph.D. McGill University, Montreal), and has participated in the release of new cultivars in Canada and sub-Saharan Africa. Dr. Blade has published 70+ research articles, ten book chapters, 140+ conference abstracts and has edited four books.

Dr. Blade previously served as Deputy-Director General (Research) for the International Institute of Tropical Agriculture (active in 23 sub-Saharan African countries). Dr. Blade’s expertise has been recognized through his invitations to participate in research reviews conducted by the European Union, Consultative Group on International Agricultural Research, the Canadian Foundation for Innovation and participation on numerous industry advisory groups.

Dr. Blade is a Board Member of the CHF – Partners in Rural Development (an international NGO). Dr. Blade has previously served on the University of Alberta Senate, and on the Boards of the Telus World of Science and the Edmonton Public Library. He has been asked to serve as a discussion leader for Harvard Business School’s Agribusiness Program, and participated in Oxford University’s Foresighting Program.

Richard Wayken is the General Manager for the Bio and Industrial Technologies portfolio for Alberta Innovates Technology Futures. With more than 20 years of experience, including over a decade of senior advisory and management roles, Richard is well positioned to lead these key portfolios that include, Advanced Materials, Bio-Resource Technologies, Industrial Sensor Technologies and Fibre Products to optimize Alberta’s core sectors in the energy, mining, agriculture and forestry sectors.

Richard Wayken is the General Manager for the Bio and Industrial Technologies portfolio for Alberta Innovates Technology Futures. With more than 20 years of experience, including over a decade of senior advisory and management roles, Richard is well positioned to lead these key portfolios that include, Advanced Materials, Bio-Resource Technologies, Industrial Sensor Technologies and Fibre Products to optimize Alberta’s core sectors in the energy, mining, agriculture and forestry sectors.

With a balanced portfolio of experience on both the research and development side of pre-commercialization, Richard has played a key role in building Tech Future’s relationships with key industry, government and academic leaders. Some of the key initiatives that he has led include, managing the Venture portfolio for the Alberta Research Council’s Vice President of Energy where he acted as a senior advisor. He has also played a leading role in expanding leading materials testing business into Western Canada through acquisition and mergers, acted as Technical Services Manager for C-FER Technologies Inc, a subsidiary of AITF that is dedicated to full scale civil, structural and mechanical testing, and has served in the non-commissioned ranks of the Canadian Forces where he developed his interests in electronics working with Communications and Radar Systems.

Over the years Richard has served on several steering committees and Senior Leadership Teams. Richard currently sits on the Nano Crystalline Cellulose Provincial Steering Committee and the Innovates BIO Economy Steering Committee and until recently managed the MOU between Alberta and the Smalley institute for Nano-Technology.
Dr. Surindar Singh is the Executive Director of Renewable and Emerging Resources at Alberta Innovates – Energy and Environmental Solutions, a provincial corporation which is the lead agency for energy and environmental research and innovation in Alberta, Canada. It brings together decision makers from government, industry and research organizations to implement strategies and innovations in order to preserve and enhance Alberta’s economic, environmental and social well-being. It invests in the development of energy and environmental technologies from around the globe that have the potential for application within the province, for the benefit of all Albertans.

Dr. Singh’s areas of responsibility include wind, solar, bioenergy, geothermal energy, hydrogen and fuel cells, underground coal gasification, nanotechnology, nuclear power and other emerging energy and environmental technologies. Previously he responsible for the Carbon Capture and Storage portfolio at the Alberta Energy Research Institute, corporate planning and research management at the Alberta Research Council, non-conventional energy development at the Alberta Department of Energy and was an assistant professor at the University of Alberta.

Dr. Singh has extensive expertise and experience in numerous energy and environment-related projects, including renewable energy, biomass conversion to fuels, underground coal gasification, oil sands extraction and upgrading, in situ hydrogenation of heavy oil, enhanced oil recovery schemes, coal gasification and liquefaction, steel and magnesium manufacture, natural gas upgrading and petrochemicals manufacturing.

He is a chemical engineer, with a Ph.D. from the University of Alberta and a bachelor’s degree from the Indian Institute of Technology, Delhi.

William Orts is Research Leader for a multi-disciplinary team of engineers, chemists, biochemists and molecular biologists that provides biorefinery strategies that go beyond corn ethanol. He completed graduate research at the University of Toronto, in collaboration with Xerox, focused on novel bacterially-produced degradable plastics. Dr. Orts completed a postdoctoral fellowship at the National Neutron Scattering Center, Gaithersburg, MD to optimize neutron scattering as a method for characterizing biopolymer nanostructures.

Paul Kamp is new project leader for the Inbicon A/S North American team. Based in Chicago, he heads the commercialization work for Inbicon Biomass Refinery technology, which produces cellulosic ethanol, renewable power, and bio-based chemicals from agricultural residues. Paul has traveled extensively across the U.S. and Canada, collaborating with owners, operators, investors, and contractors in multiple industries, including fuels, biomass, and power generation. Much of his work is with grain-ethanol producers, developing sustainable, integrated cellulosic ethanol and renewable heat and power operations platforms, with a focus on regionally accessible feedstocks and product markets. While with Accenture’s Executive Consulting group, Paul led a group of global companies in bio-based supply chain strategy. As North American business development director for Delta-T Corporation during its heyday, he played leading or key roles in first generation ethanol projects totalling over $1 billion. He has an extensive background in energy, chemicals, biofuels, renewable resources, legislative affairs, and technology commercialization.
Steve Aldrich is the founder of Bio Economic Research Associates LLC (bio-era™), an independent research and consulting firm specializing in complex issue analysis at the intersection of our emerging knowledge of biology and the economy.


While at CERA, Steve had the great privilege to learn scenario methods directly from Ted Newland, one of the original developers of formal scenario planning techniques at Royal Dutch Shell, and subsequently launched bio-era as an independent research and consulting firm on the social and economic consequences of human-induced change to biological systems in 2003. The firm has specialized in part on applying scenario planning methods to major problems at the intersection of biology and the economy.

Steve is the author or co-author of numerous articles, books, and reports on bio-era’s application of scenario methods, including:

“Genome Synthesis and Design Futures: Implications for the US Economy” (2007)
“Thinking Ahead: Anticipating Early Impacts of an Avian Influenza Pandemic” (2005)
“Using Scenarios to Understand the Impact of an Avian Influenza Pandemic” (2005)
“Rising Waters: Helping Hudson Valley Communities Adapt to Climate Change” (2009)
“Futures of the Wild” (2007)

Doug Hershberger
Principal Scientist, Computational Biology
Intrexon Corporation

Over the course of his career, Dr. Hershberger has worked for, or collaborated closely with many of the leading industrial and renewable chemicals and fuels companies, including Dow Chemical, Genomatica, LS9, and Codexis. As a principal scientist in the Metabolic Engineering group of the Industrial Products Division of Intrexon, his goal is to accelerate Intrexon’s position as the premier synthetic biology company in industrial markets.

Doug directs the construction of synthetic biology platforms enabling data-driven strain and protein evolution. He was a key force in a collaboration between Genomatica and Dow applying metabolic modeling, genomics, proteomics and transcriptomics to the Pfenex protein production platform, and is applying this technology to the model, design, build, test cycle central to Intrexon’s synthetic biology strategy.

Doug received his PhD in Microbiology from the University of Illinois Medical Center in the lab of Al Chakrabarty. This experience gave him a solid grounding in molecular biology and the metabolic pathways of biodegradation. As a post-doc at the University of Minnesota, Doug was essential to the early growth and development of the University of Minnesota Biocatalysis/Biodegradation Database (UMBBD). He also co-authored a book on the “metabolic logic” of microbial pathways with his advisor Larry Wackett.
VIJAY SINGH  
ASSOCIATE DIRECTOR OF ENGINEERING  
CENTER FOR ADVANCED BIOENERGY RESEARCH, UNIVERSITY OF ILLINOIS  

Dr. Vijay Singh is an Associate Professor in the Department of Agricultural and Biological Engineering and Associate Director of Center of Advanced BioEnergy Research at the University of Illinois at Urbana-Champaign. His research is on development of bioprocessing technologies for corn/biomass to ethanol, advanced biofuels, food and industrial products.

Dr. Singh has authored 170 professional publications and holds ten patents related to bioprocessing and biofuels production. He received his M.S. and Ph.D. in Food and Bioprocess Engineering from the University of Illinois at Urbana-Champaign. Dr. Singh is recipient of several research and teaching awards from professional societies, trade organizations and academic institutions. Dr. Singh has served as associate editor for Journal of Cereal Chemistry and Transactions of American Society for Agricultural and Biological Engineers. He is currently associate editor for Journal of the American Oil Chemists’ Society, Food and Bioproducts Processing, and Industrial Biotechnology. Dr. Singh has organized and chaired national and international conferences on biofuels and cereal grains processing for National Academy of Engineering, National Corn Growers Association, American Association of Cereal Chemists International and others.

JEFF PASSMORE  
PRESIDENT  
PASSMORE GROUP INC.

Jeff Passmore has worked in renewable energy for more than 30 years, both as a consultant, and as Executive Vice President of Iogen Corporation. In 2010, he launched the Passmore Group Inc., a consultancy focused on bridging the gap between public policy and market reality, and on providing clients with the necessary policy and communications tools to lead to the more rapid commercialization of innovative energy and environmental technologies.

Jeff currently serves on the CleanTech Advisory Board of the Department of Foreign Affairs and International Trade Canada. He is the Past Chair of the Canadian Renewable Fuels Association, Past Chair of the Canadian Wind Energy Association, Past Chair of the Solar Energy Society of Canada, Past Vice-Chair of the Independent Power Producers’ Society of Ontario, and Past President of the Ottawa Chapter of the International Association for Energy Economics. Most recently, he founded the New Economy Alliance, an industry group focussed on advancing the field of biomass for fuels and chemicals. Jeff’s work has taken him on projects in Asia, Africa, throughout Europe, and across North America.

DOUG C. CAMERON  
FOUNDER & MANAGING DIRECTOR  
ALBERTI ADVISORS

Doug Cameron is the founder of Alberti Advisors, a venture advisory firm focused on business, science and engineering at the intersection between clean technology and agriculture.

Cameron has a wide range of experience in finance and technology. He was Chief Science Advisor and Managing Director in the cleantech investment banking group at Piper Jaffray, a global investment bank headquartered in Minneapolis. From 2006-2008, Cameron was chief scientific officer at Khosla Ventures, a premier Silicon Valley-based cleantech venture capital firm, where he led several investments in bio-based chemicals and biofuels. From 1998-2006, he was at Cargill, Inc. where he held the position of Director of Biotechnology and Chief Scientist. From 1986-2000, Cameron was a professor of chemical engineering at the University of Wisconsin, Madison. Cameron served or continues to serve on the board of twelve bioenergy companies including Kior (Nasdaq:KIOR), Gevo(Nasdaq:GEVO), Renmatix, and Mascoma. He also served as acting CEOs for Gevo, LS9, and Segatis. In 2009, Cameron was the recipient of the Raphael Katzen Award for his contributions in furthering the deployment and commercialization of biotechnology to produce fuels and chemicals from renewable resources. Cameron graduated from Duke University with a BSE in biomedical engineering and earned a PhD in biochemical engineering from the Massachusetts Institute of Technology.
MANOJ KUMAR
DIRECTOR OF SCIENCE & TECHNOLOGY, GLOBAL NEW BUSINESS DEVELOPMENT
DSM WHITE BIOTECHNOLOGY

Dr. Manoj Kumar is an innovator and entrepreneur as reflected by more than 15 granted patent and >50 pending patent applications to his credit and stint with multiple innovative companies during his 15 years of service to industrial biotechnology. He is a biochemist by training with 25 years of R&D experience in various industrial sectors such as industrial enzymes, vitamins, biochemicals, biofuels, personal care, silicon biotechnology, and nanobiotechnology. He is one of recipient member of US Presidential Green Chemistry Challenge Team Award of 2003.

Prior to joining DSM, Dr Kumar worked for a leading enzyme company, Genencor Inc., for 10 years. He has been involved in building the white biotechnology emerging business area since its inception at DSM for last five years and is PI for DSM cellulose enzyme development program partially funded by US Department of Energy.

In the past, Dr. Kumar has been involved in projects related to discovery, screening, purification, chemoenzymatic synthesis, biomaterials design, and application testing of enzymes in the chemicals, food, detergents, cleaning and personal care industries. In addition, he has contributed broadly to new business development, strategic analysis, costing, business plan development and implementation, partnership due diligence, M&A analysis, and venturing. Dr. Kumar has given over 50 invited and contributory research presentations at various national and international conferences. He is elected IAB chair (2011-2012) of NSF center for industrial biocatalysis at Iowa State University and a member of scientific advisory board of Canadian cellulosic biofuels network.

STEPHANIE CLENDENEN
RESEARCH ASSOCIATE AND BIOTECHNOLOGY PROGRAM LEADER
EASTMAN CHEMICAL COMPANY

Dr. Stephanie K. Clendennen received a Ph.D. in Biological Sciences from Stanford University with subsequent postdoctoral research at Cornell University. She spent her early career as a director of technology development at a pharmaceutical and agricultural biotechnology company on the West Coast before joining Eastman Chemical Company in 2003.

During her time at Eastman, Stephanie has promoted the innovative use of biotechnology processes for the manufacture of new materials, with a recent focus on the production of green and natural performance cosmetic ingredients.

LORI SHEREMETA
ADVISOR, STRATEGY & POLICY
NATIONAL INSTITUTE FOR NANOTECHNOLOGY, NATIONAL RESEARCH COUNCIL

Lori Sheremeta is a lawyer by training and has been affiliated with NINT since 2002 in a research capacity. Much of Lori’s work has focused on the legal and policy implications of nanotechnology and she is recognized as a national leader in this area.

She sits as a current member of Health Canada’s Science Advisory Board and recently she served as a member of the Council of Canadian Academies expert panel on nanotechnology. This panel was tasked with evaluating the current state of knowledge of nanomaterials, their health and environmental impacts that could underpin regulatory perspectives on the need for research, risk assessment and surveillance.

Lori’s current research efforts include strategic risk communication and the legal and regulatory challenges raised by nanomaterials, from the environmental, human health (including occupational health and safety) and consumer product perspectives. She now sits as a member of NINT’s Management Team.
ECKHARD DINJUS  
INSTITUTE DIRECTOR AND PROFESSOR OF CHEMICAL-PHYSICAL PROCESSING  
KARLSRUHE INSTITUTE FOR TECHNOLOGY (KIT)

Born in Saalfeld/Saale, Germany, Dr. Eckhard Dinjus attended the Friedrich-Schiller-University of Jena (FSU) where he was trained as Chemical Technical Assistant. He subsequently obtained his PhD at the Institute for Inorganic Chemistry. In 1987, he became leader of the “Chemietechnikum” (chemical pilot plant) group at the Institute of Technical Chemistry. Following a Joint Venture to Jenapharm, Dr. Dinjus was Guest Professor at the Max-Planck-Institute for Coal Research in Mülheim/Ruhr, and then Leader of the “CO₂-Chemistry” research group of the Max-Planck Society at FSU. Since 1996, Dr. Dinjus has held a professorship at the Institute of Technical Chemistry at the University of Heidelberg and is the Director of the Institute of Catalysis Research and Technology at the Karlsruhe Institute for Technology (KIT).

ANTHONY ANYIA  
MANAGER, BIORESOURCE TECHNOLOGIES  
ALBERTA INNOVATES TECHNOLOGY FUTURES

Dr. Anthony Anyia received his PhD in 2001 from the Humboldt University of Berlin. He joined the Alberta Research Council (now part of Alberta Innovates-Technology Futures, AITF) as a Research Scientist in 2002. He is currently a lead Scientist and Manager of the Bioresource Technologies Business Unit at AITF.

As manager, Dr. Anyia provides scientific and management leadership to programs in Applied Genomics, Biofibre feedstock development, Microbial Bioproducts, and Biomass Processing/Materials development. His portfolio of programs also includes the biomass pyrolysis program that focuses on biochar production and end-use applications development.