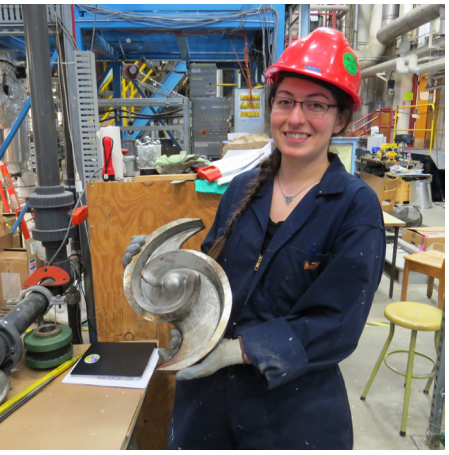
Pulp and Paper Centre's

Pulp Digest

April 2014

Name Change



Nici Darychuk, Research Assistant at the PPC, submitted the winning name: *Pulp Digest*

Did you notice we changed the name of the newsletter?!

Thank you to everyone who submitted their creative ideas for our name-change contest. You sure didn't make it easy to pick one! Congratulations to Nici Darychuk for her winning submission. We asked Nici how she came up with the name *Pulp Digest*, here's what she had to say:

> "I was brainstorming synonyms for newsletter and digest jumped out at me, indeed because of digesters in the pulping process. A digester is the reaction vessel in which wood chips or other plant materials are cooked with chemicals to separate fibre by dissolving lignin. I see the newsletter as a "digest" in which all the information around PPC happenings for the month is "cooked down" into a handy and useable form, just like separating the useful fibres from the other materials present in the wood chips".

We couldn't agree more! Hope you enjoy our latest issue of *Pulp Digest*.

Q&A with Director Martinez

Professor Mark Martinez

It has been three months since Professor Mark Martinez took the helm of the PPC. As director, he provides scientific leadership to promote the Centre, as well as oversees the program, research and collaborations the Centre is so heavily invested in. Professor Martinez fosters an inclusive working environment where all staff, students, researchers and faculty have a fulfilling environment in which to work, learn and live. He also manages strategic plans such as community outreach and recruitment efforts.

Professor Martinez recently took a moment to talk about his leadership at the PPC.

You are a professor at the department of Chemical and Biological Engineering (CHBE), as well as current director of the Advanced Papermaking Initiative at UBC. What brings you to the PPC?

I have been closely associated with the Centre since 1990, long before I was a professor. At that time, I was a PhD candidate at the Centre working on LC Refining under the supervision of Richard J. Kerekes, now Professor Emeritus in CHBE. I shared an office with Professors James Olson and Robert Gooding. It is very rewarding to be here in a leadership role and I appreciate this unique opportunity.

Do you have any specific goals or initiatives you would like to introduce at the PPC?

Yes, many. I would like to get our machine shop up and running to make the vast space and notable tools available for use by all students across campus. I want to create a bridging program for BCIT students, as well as a mentoring/coop program for our current PPC graduate students. If we give them a chance to gain experience in industry prior to graduating, I think that is very valuable to their future success. I also want the research we conduct at the Centre to continue being cutting-edge and innovative, but shift the focus towards reasearch that supports a bio-economy.

Where do you see the PPC in 5 to 10 years?

As the leader in the transformation from traditional pulp and paper industry, to the more sustainable bio-economy. We are already contributing to this movement by developing platform technologies for new material, MFC for example, and through our numerous collaborations with industry on meaningful projects such as the Energy Reduction in Mechanical Pulping group, and the Canfor research program.

New Faces

Qianjun

Farzad

Please join us in welcoming some new faces to the Pulp and Paper Centre:

Dr. Qianjun Li

Dr. Li joins the PPC as a visiting professor for the next six months under the supervision of Professor Xiaotao Bi in the department of Chemical and Biological Engineering. He joins Dr. Yonghua Li's research group and will conduct research on the biomass gasification in dual fluidized bed. Li graduated with a PhD in Environmental Engineering from Southeast University in Nanjing City, China, in 2007. He now works as a Associate Professor at Nanjing Institute of Technology.

Amir Farzad Forughi

A recent MSc graduate in Mechanical Engineering from Sharif University of Technology where his research focused on experimental optofluidics. Farzad is now a PhD candidate in UBC's Mechancial Engineering under the supervision of Professors Sheldon Green and Boris Stoeber. He will work on experimental study of paper drying as his PhD thesis.

Publications

Journal

Salem, Hayder, R.W. Gooding, D.M. Martinez, and J.A. Olson, "Experimental Study of Some Factors Affecting Pulp Screen Capacity " accepted by Nordic Pulp and Paper Research Journal, published in June 2014.

Summary: The effect of screen cylinder geometry, pulp type, and rotor speed on screen capacity was investigated. Five screen cylinders with different slot geometries were tested using different ratios of softwood/hardwood kraft pulp mixtures and different reject ratios. The relationship between the rotor speed and screen slot velocity at the verge of plugging, taken here as a measure of "capacity", was found to be remarkably linear. Feed consistency and fibre length were found to have significant influences on capacity.

Conference Proceedings

Yousefi, Mahdi, M.G. Forbes, R.B. Gopaluni, G.A. Dumont, J. Backstrom, A. Malhotra, "Sensitivity of Controller Performance Indices to Model-Plant Mismatch: An application to Paper Machine Control" accepted by American Control Conference, 2014

Abstract: The performance of a model-based controller depends inextricably on the quality of the corresponding model. The performance of such a controller is optimal with respect to the model. Therefore any model-plant mismatch can be expected to result in poor performance. The objective of this work is to study the sensitivity of commonly used performance indices to model-plant mismatch. A sensitivity measure is defined and a frequency domain expression for quantifying the sensitivity is derived. It is shown that the sensitivity of the performance indices varies for different types of model mismatch, e.g., gain mismatch, etc. Furthermore, model mismatch has different effects on the performance of the system when it is operating in steady state or in a transitional mode. These differences can reveal the type of plant-model mismatch. The results are illustrated on industrial paper machine data.

Singh, Fatehjit, Green, S.I., Stoeber, Boris, "Forming fabric effect on drainage velocity and pulp fibers" accepted by The Canadian Society for Mechanical Engineering International Congress, 2014

Abstract: Micro particle image velocimetry measurements are conducted to measure the drainage velocity distribution upstream of two different fabrics, namely Monoflex D60™ and Integra™. As expected, the experiments show the existence of a highly variable drainage velocity field upstream of both fabrics. The computed velocity fields are interpreted to yield insight into the behaviours of fibers in the flow, depending on their length. It is observed that the fibres with a length greater than 1.5mm experience normalized standard deviation (NSD) of less than 10% irrespective of fabric's weave and filament diameter. The deposition of fibers with intermediate length ($200\ \mu m < l < 1500\ \mu m$) is most strongly influenced by the variations in fabric's weave structure. In general, the fabric with finer weave pattern is expected to result in more uniform fiber deposition. Single fibre deposition onto fabric`s surface is studied by placing gold wire at known orientation to fabric filaments. The effect of wire is highly localized and is expected to adversely affect the deposition rate of fines and filler material in the immediate vicinity.

Intl Day of Forests

Above: Expert tour guide Nici with the **Western Redcedar.** BC's Provincial tree, also known as the Tree of Life as it is able to provide shelter, clothing, tools and transportation. It has been called "the cornerstone of Northwest Coast aboriginal culture," and has great spiritual significance. It can grow up to 60m tall and grows best in moist to wet soils with lots of nutrients. It is tolerant of shade and long-lived, sometimes over 1,000 years.

The United Nations General Assembly declared March 21st as the International Day of Forests. The day celebrates and raises awareness of the importance of all types of forests. It was only natural for the PPC to celebrate this important day, so they hosted a nature walk around Totem Park, a forest on the edge of the UBC campus. A group of more than 25, including PPC's Director Mark Martinez, gathered on a sunny afternoon to learn about various tree species, listen to folk stories, learn new facts, and learn about all the different uses of the various trees that were discussed. The group was pleasantly surprised when they saw a Bald Eagle on the walk. Some facts that were shared: Forests cover a third of land on earth, and half of all know species live in forests. Forests also prevent erosion, reduce flooding, and purify the soil and the air. Did you know that one full grown tree can produce enough oxygen for ten people? The forestry industry employs 1.6 billion people, including us at the PPC. The nature walk concluded with lunch at the Centre and a viewing of a documentary made on Vancouver Island titled "Logging: from chain saw to saw mill".

Please visit www.ppc.ubc.ca/ForestDay to view bio's of our expert tour guides, Nici and Chrissy.

Above: **Big Leaf Maple**. Often multi-stemmed and grows up to 35m tall. The wood can be used to make paddles and tools; the seeds sprouted for food; and the sap used to make maple syrup. It sprouts "canopy roots" into the mossy soil on its branches.

Above: **Douglas Fir.** It did not appear in BC's region until ~7,000 years ago. It has flat, pointed needles and oval cones. It has coarse wood fibres which make it problematic for papermaking. Legend has it that a mouse hid in the cone of a Douglas fir to hide from a fox. Next time you come across one, look for little "feet and a tail" hanging out of the cone (photo can be seen on our Twitter feed).

The Faculty of Forestry also celebrated the day with a photo competition, offered several viewings of unique documentaries about forests from around the world, and as seen in the photo below, planting a Garry Oak tree during a tree planting ceremony.

Pictured: John Innes, Dean of the Faculty of Forestry, Amir Virk, Minister of Advanced Education, John Hepburn, UBC VP, Research & Intl, and Barbra Wong, Forestry Graduating Class of 2014 rep. Photo: Jamie Myers

UBC President

Pictured: Dr. Arvind Gupta has been named the 13th president and vice chancellor of the University of British Columbia. Photo: Martin Dee

News Release | March 12, 2014

A renowned expert in research and innovation policy who has forged close collaborations between universities, civil society and business has been appointed the 13th president and vice chancellor of the University of British Columbia.

Dr. Arvind Gupta is currently chief executive officer and scientific director of Mitacs, a not-for-profit organization recognized internationally for nurturing the next generation of research and business-savvy innovators. Gupta succeeds Professor Stephen Toope, who completes his eight years' service on June 30, 2014. Gupta will become president on July 1 for a five-year term, while retaining his position at UBC as professor of computer science.

The UBC Board of Governors made the appointment following an international search by a 22-member committee comprising faculty, staff, students, alumni, senate and board members from UBC's Vancouver and Okanagan campuses, and chaired by UBC Chancellor Sarah Morgan-Silvester.

"The opportunity to lead one of the world's great universities attracted outstanding candidates, but Dr. Arvind Gupta clearly stood out as the best choice to lead this great university," said Board Chair John Montalbano. "The Board will provide its full support to Dr. Gupta as he guides UBC in its pursuit of excellence, so that we may better serve the people of British Columbia, Canada and the world."

"I was delighted to hear Dr. Gupta will be succeeding me," said Stephen Toope. "In him, UBC has found a leader with rare attributes: critical thinking, inspiring vision and the courage to chart a bold course."

Gupta will be UBC's 13th president and vice chancellor since 1913, when Frank Wesbrook first held the position. UBC has grown to more than 58,000 students and 15,000 faculty and staff, with an annual budget of $2.2 billion and an estimated $12.7 billion annual contribution to the B.C. economy.

"As a member of the UBC community, I know how great a responsibility and honour this is," said Gupta. "I have the privilege of taking the baton from Professor Toope who has guided UBC to a strong position. We have exciting days ahead and I relish the opportunity."

For biography and video, visit www.ppc.ubc.ca/ubc-president

Celebrating Holi

By Fatehjit (Jit) Singh

Pictured: PPC Researchers participating in the UBC Holi celebrations. Nici Darychuk, Jorge Rubiano and Jit Singh

Holi is an ancient Hindu religious festival marking the beginning of spring. There are several mythological stories related to the origin of the festival, but we know that the festival is celebrated with a variety of colours, water balloons and water guns. Traditionally, natural plant-derived colours such as turmeric, neem and dhak are used with the consistency similar to that of a dry powder or chalk. Parties are organized and people dance to music and greet each other with the colours. Anyone and everyone is fair game, friend or stranger, rich or poor, man or woman, children and elders, all religious (or non) denominations are welcome at this fun event. There are no prayers on this day, no sermons are said, with the sole aim to enjoy each other and have fun. As such, the festival has become quite popular; though initially celebrated only in South east Asia, in the last few decades it has spread to various parts across the globe.

UBC students celebrated Holi on March 22nd on McInnes field at the UBC Vancouver campus. Over 400 students and participants enjoyed the event on a sunny Saturday afternoon. The Pulp and Paper Center students and faculty were not left untouched by the event and many joined in for the party. The event lasted for more than 3 hours and was an amazing bonding event for all of us. The celebration will definitely remain in our memories for a long time and we will be eagerly looking forward to participating again next year.

Upcoming Events

Lecture: "European Experiences in Environmental Policies: Past, Present, Future"
April 1, 5:00-6:30 pm, reception to follow, Coach House
Jacqueline Cramer is Director of the Utrecht Sustainability Institute and a professor in sustainable innovation at Utrecht University, the Netherlands. Her distinguished career in academic, government, private and non-profit sectors has consistently focused on finding sustainable innovations and policies to address environmental challenges.

UBC Integrated Engineering (IGEN) Project Showcase
April 3, 5:30-7:30 pm, Life Sciences West Atrium
The annual event showcases innovative and multidisciplinary engineering design projects. Come and learn about this exciting program, network with students and faculty members, and see some of the exciting projects this year's student groups have put together. RSVP required.

Engineering Excellence Celebration 2014
April 10, 6:00-9:00 pm, Four Seasons Hotel
Awards are presented in categories such as Lifetime Achievement, Community Service and Young Alumnus. RSVP required.

International Mother Earth Day
April 22
Recognizing that Mother Earth reflects the interdependence that exists among human beings, other living species and the planet we all inhabit, the General Assembly declared April 22nd as International Mother Earth Day to highlight the need to help improve the lives of children and adults who suffer from the disorder so they can lead full and meaningful lives.

FIBRE Conference
May 12-15, various locations, UBC
FIBRE participants from the eight participating networks and delegates from industry, government, invited guests and conference registrants will partake in an exciting four-day program. Deadline for poster submission is April 1st. **Volunteers needed!** More info can be found on www.fibrenetwork.org/events/event2014/

PACWEST
May 28-31, Jasper, AB
Six PPC researchers will be presenting technical papers and presentations at the upcoming PACWEST Conference with a theme of "Improving Mill Results – Keys for Success". Several others will also participate in the poster session. More info can be found on www.pacwestcon.net

Social Media

Follow us on Twitter **@ubcPPC**

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Visit us online: www.ppc.ubc.ca

Thanks for all your TWITTER support. Below we share a few of our recent tweets:

UBC Pulp & Paper Centre @ubcPPC 21 MAR
Western Yew's bark produces anti-cancer compounds #IntlForestDay @ubcappscience pic.twitter.com/WOVKRjmGrf

UBC Pulp & Paper Centre @ubcPPC 21 MAR
Did you know the Western Red Cedar is known as the Tree of Life? #IntlForestDay pic.twitter.com/U1N5rYLJkh

UBC Pulp & Paper Centre @ubcPPC 12 MAR
UBC Board appoints Dr. Arvind Gupta president and vice chancellor: http://news.ubc.ca/2014/03/12/ubc-board-appoints-13th-president-and-vice-chancellor/ ...

UBC Engineering @ubcengineering 7 MAR
This #womensday celebrate inspirational women. We love these 25 powerful women engineers in tech http://owl.li/umnZr #wie

UBC Pulp & Paper Centre @ubcPPC 5 MAR
Congratulations to the four APSC students heading to the UBC 3MT semi-finals. More: http://www.ppc.ubc.ca/2014/03/05/3mt/ @ubcengineering @ubcappscience

Contact

To submit items to *PPC's Pulp Digest,* **please contact Anna Jamroz, PPC Communications Coordinator at: anna.jamroz@ubc.ca**