

# PROGRAM

**Monday July 26, 2010**

**École de technologie supérieure (ÉTS), 1100 Notre-Dame Ouest, Montréal**

8:30 - 9:00

## OPENING REMARKS

- Professor A.D. Ngo (*École de technologie supérieure, U. du Québec*)
- Dr. J. Denault (*Industrial Materials Institute/Conseil national de recherches Canada*)
- Dr. A. Nakai (*Kyoto Institute of Technology*)
- Dr. T. Morii (*Shonan Institute of Technology*)
- Professor H. Hamada (*Kyoto Institute of Technology*)
- Professor S.V. Hoa (*Concordia University*)
- Professor Jean Belzile, (*Director, Direction de la recherche et des relations avec l'industrie, École de technologie supérieure, U. du Québec*)

9:00 - 9:40

## PLENARY LECTURE I

**Chairperson :**

**S.V. Hoa (*Concordia U.*)**

### **NRC-NATIONAL PROGRAM ON BIOPRODUCTS: BIOBASED POLYMER AND COMPOSITES**

**Mr. Adrien Pilon M.Sc. Env., (*Director, Environment Sector, Biotechnology  
Research Institute, National Research Council Canada*)**

9:40 - 10:00

BREAK

10:00 – 12:20

## SESSION 1 GREEN AND NANO COMPOSITES I

Chairpersons:

A. Pilon (*NRC*) and J. Noda (*Yamaguchi U.*)

10:00 - 10:20

ADVANCED GREEN COMPOSITES AND NANOCOMPOSITES: NEW  
INDUSTRIAL BIOMATERIALS FROM BIOREFINERY  
A.K. Mohanty, S. Vivekanandhan, S. Sahoo, M. Misra

10:20 - 10:40

TENSILE PROPERTIES OF SLIVER-BASED UNIDIRECTIONAL GREEN  
COMPOSITES WITH FLUCTUATION IN FIBER ORIENTATION  
J. Noda, B. Ren, K. Goda

10:40 - 11:00

CHARACTERIZATION OF POLYPROPYLENE COMPOSITES  
REINFORCED WITH FLAX FIBERS TREATED BY MECHANICAL AND  
ALKALI METHOD  
W. Hu, M.T. Ton-That, J. Denault, C. Bélanger

11:00 - 11:20

EFFECT OF WATER ENVIRONMENT ON JUTE/POLYPROPYLENE  
COMPOSITES

T. Morii, S. Tomioka, H. Hamada

11:20 - 11:40 NOVEL, LOW-COST WATER HYACINTH-POLYESTER COMPOSITES.  
PART 1: PROCESSING, MECHANICAL PROPERTIES AND FTIR  
SPECTROSCOPY

N. Flores-Ramirez, J. Cruz-De Leon, S.R. Vasquez-Garcia, L. Garcia-Gonzalez

11:40 – 12:00 DEVELOPMENT OF NATURAL FIBER-REINFORCED HIGH  
TEMPERATURE THERMOPLASTIC COMPOSITES

Y.W. Leong, T. Smith, H. Hamada

12:00 – 12:20 MDF FIBER REINFORCED-POLYSTYRENE COMPOSITES

S.T. Sean

12:20 - 13:20 LUNCH

13:20 – 15:20

**SESSION 2 GREEN AND NANO COMPOSITES II**

Chairpersons:

T. Kosaka (*Osaka City U.*) and A.K. Mohanty (*U. Guelph*)

13:20 - 13:40 FABRICATION AND MECHANICAL PROPERTIES OF  
NANOCOMPOSITES FABRICATED BY REIN INFUSION WITH  
BIORESIN AND NATURAL FIBERS

F. Bensadoun, N. Kchit, E. Ruiz, F. Trochu

13:40 - 14:00 MEASUREMENT OF CURE INDEX OF NANO CARBON COMPOSITES  
BY AN OPTICAL FIBER SENSOR WITH DUAL LIGHT SOURCES

T. Kosaka, K. Osaka, Y. Sawada

14:00 - 14:20 POLYETHYLENE/CARBON NANOTUBES NANOCOMPOSITES

K. Stoeffler, F. Perrin-Sarazin, M.T. Ton-That, J. Denault

14:20 - 14:40 LOW LINEAR POLYETHYLENE (LLDPE)/NANOCLAY COMPOSITE:  
PROCESS PARAMETERS AND MECHANICALS PROPERTIES

C. Trudel, A.D. Ngo, S.T. Sean

14:40 - 15:00 NON-ISOTHERMAL CRYSTALLIZATION BEHAVIOUR OF CLAY-  
REINFORCED POLYPROPYLENE NANOCOMPOSITES

H. Ben Hadj Salah, H. Ben Daly, F. Perrin-Sarazin, J. Denault

15:00 - 15:20 EFFECT OF ADDITION OF NANOCLAYS ON PROPERTIES OF VINYL  
ESTER

T.K.A. Bui, S.V. Hoa, T.D. Ngo, M.T. Ton-That

15:20 - 15:40 BREAK

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15:40 – 17:40  
Chairpersons:

**SESSION 3 NANO COMPOSITES – METAL COMPOSITES**

A. Maslouhi (*U. Sherbrooke*) – G. Sasaki (*Hiroshima U.*)

- 15:40 - 16:00      ELECTROSPUN NANOCOMPOSITE FIBRES: PROCESSING, PROPERTIES AND APPLICATIONS  
M. Misra, R. Kumar, N. Khan, N. Satyanarayana, A.K. Mohanty
- 16:00 - 16:20      STRUCTURE AND PROPERTIES OF SUPERPARAMAGNETIC COMPOSITE NANOFIBRE  
M. Bayat, H. Yang, F. Ko
- 16:20 - 16:40      FATIGUE DAMAGE AND LIFE EVALUATION OF PARTICLE-REINFORCED ALUMINIUM MATRIX COMPOSITES OF A16061/Al<sub>2</sub>O<sub>3</sub> AND A116061/SiC UNDER UNIAXIAL AND MULTIAXIAL LOADING CONDITIONS  
C.E. Sutton, A. Varvani-Farahani
- 16:40 – 17:00      LOW INFILTRATION PROCESS OF MOLTEN ALUMINUM ALLOY TO C/C PERFORM WITH NICKEL COATING  
G. Sasaki, M. Morioka, K. Sugio, H. Fukushima, Y.B. Choi, K. Matsugi, Y. Ushijima
- 17:00 – 17:20      FABRICATION AND CHARACTERIZATION OF UNIDIRECTIONAL CF/AL COMPOSITES  
M. Lee, Y.B. Choi, K. Sugio, H. Fukushima, K. Matsugi, G. Sasaki
- 17:20 – 17:40      TENSILE STRENGTH AND FRACTURE BEHAVIOR OF PARTIALLY SILICONIZED CARBON-CARBON COMPOSITE UP TO 2273K  
A. Ohtani, K. Goto
- 17:40 – 18:00      MICROSTRUCTURAL ANALYSIS OF VOIDS IN WOVEN FABRIC BASED THERMOPLASTIC COMPOSITE  
H. Salek, S.V. Hoa, J. Denault

**Tuesday July 27, 2010**

**Industrial Material Institute (Boucherville)**

- 8:00 – 8:20      **Gathering in front of ÉTS to wait for the bus moving to IMI-NRC at Boucherville. Bus will leave at 8:20**
- 8:20 – 9:00      Bus will arrive at IMI at 9:00
- 9:10 – 9:20      **WELCOME REMARKS**  
  
Dr. Christian Bélanger, Acting Director Advanced Materials Design of IMI-NRC
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9:20 – 10:20  
Chairpersons:

**SESSION 4 CHARACTERIZATION I**  
A. Otani (*JAXCA-ISAS*) – M.T. Ton-That (*IMI*)

9:20 – 9:40 CONSOLIDATION QUALITY AND MECHANICAL PROPERTIES OF THERMOPLASTIC COMPOSITE MANUFACTURED BY PULL-BRAIDING  
L. Laberge-Lebel, Y. Tanaka, A.R. Torun, A. Ohtani, A. Nakai

9:40 – 10:00 THE EFFECTS OF HYGROTHERMAL AGING ON MODE II DELAMINATION PROPAGATION IN G40-800/5276-1 GRAPHITE/EPOXY COMPOSITE  
B. Landry, G. LaPlante, A. Maslouhi

10:00 – 10:20 IN-LINE COMPOUNDING OF DIRECT LONG FIBRE THERMOPLASTICS: INJECTION VERSUS COMPRESSION MOULDING  
M. McLeod, E. Baril, J-F. Héту, T. Deaville, M. Bureau

10:20 – 10:40 BREAK

10:40 – 12:20  
Chairpersons:

**SESSION 5 CHARACTERIZATION II**  
C. Poon (*Ryerson U.*) - T. Morii (*Shonan Inst. of Technology*)

10:40 – 11:00 EFFECTS OF TWISTED YARN ON MECHANICAL PROPERTIES IN FIBER STRUCTURAL HYBRID COMPOSITE MATERIALS  
K. Sakoda

11:00 – 11:20 USING FIBER OPTIC STRAIN SENSORS FOR ELEVATED TEMPERATURE FATIGUE TESTING OF POLYMER MATRIX COMPOSITE MATERIALS  
J. Montesano, M. Selezneva, C. Poon, Z. Fawaz, K. Behdian

11:20 – 11:40 ON THE LATERAL VIBRATION OF DELAMINATED MULTILAYER BEAMS  
N.H. Erdelyi, S. Hashemi

11:40 – 12:00 LOW-SPEED IMPACT TEST FOR FOAM SUPPORTED COMPOSITE LAMINATES  
Y. Zhang, A. Johnston, S. Ouellet, K. Williams, D. Boucher, S. Labonté

12:00 – 12:20 DETERMINATION OF INTERLAMINAR CRACK INITIATION CRITERIA ENVELOPE IN COMPOSITE MATERIALS USING

ACOUSTIC EMISSION MONITORING  
I. Silversides, A. Maslouhi, G. LaPlante

12:20 – 13:20 LUNCH

13:20 – 15:00 **SESSION 6 CHARACTERIZATION III**  
Chairpersons: F. Ko (*UBC*) – L. Laberge Lebel (*Kyoto Inst. of Technology*)

13:20 – 13:40 EFFECT OF INTERFACIAL PROPERTY ON CF/PP CONTINUOUS  
FIBER REINFORCEMENT THERMOPLASTIC COMPOSITE  
Y. Tanaka, H. Nakamura, A. Ohtani, N. Ikuta, A. Nakai

13:40 – 14:00 FABRICATION AND CHARACTERIZATION OF ELECTRICALLY  
CONDUCTING LIGHT WEIGHT POLYMER MICRO-WIRES  
A. Khosla

14:00 – 14:20 SUPPRESSION OF DELAMINATION PROPAGATION IN  
CARBON/EPOXY LAMINATES BY THE USE OF SUPERELASTIC  
STITCHING WIRES:PRELIMINARY RESULTS  
P-L. Vachon, V. Brailovski, P. Terriault

14:20 – 14:40 TENSILE PROPERTIES OF NEW GLASS FIBER REINFORCED  
COMPOSITE LAMINATES PRODUCED BY THE FILAMENT  
WINDING WET TECHNIQUE  
D. Metiche, R. Nacer, R. Masmoudi

14:40 – 15:00 ADHESIVE BOND TESTING BY LASER SHOCK WAVES AND  
LASER INTERFEROMETRY  
M. Perton, A. Blouin, J-P. Montchalin, E. Gay, L. Berthe, M. Boustie, M.  
Arrigoni

15:00 – 15:40 BREAK – IMI TOUR

**BANQUET**

15:40 – 16:10 **Gathering in front of IMI to wait for the Bus transporting to the Banquet.  
Bus will leave IMI at 16:10**

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**Wednesday, July 28, 2010**

**École de technologie supérieure, 1100 Notre-Dame Ouest, Montréal**

8:40 – 9:20

**Chairpersons:**

**PLENARY LECTURE II**

**H. Hamada** (*Kyoto Inst. of Technology*)

**COMPOSITES RESEARCH: PAST, PRESENT AND FUTURE TRENDS**

**Professor Anoush Poursartip** (*University of British Columbia*)

9:20 – 10:20

**Chairpersons:**

**SESSION 7 MANUFACTURING I**

Goichi Ben (*Nihon U.*) – G. Akhras (*RMCC*)

9:20 – 9:40

**DETECTION SYSTEM OF FOREIGN OBJECT IN INJECTION MOLDING PRODUCTS**

A. Goto, S. Joko, M. Kitazumi

9:40 – 10:00

**THERMOELASTIC SPRING-IN OF CURVED COMPOSITE PARTS MANUFACTURED BY FLEXIBLE INJECTION**

P. Causse, E. Ruiz, F. Trochu

10:00 – 10:20

**LASER-ULTRASONIC AND LASER-TAPPING FOR THE INSPECTION OF AEROSPACE COMPOSITE STRUCTURES**

A. Blouin, C. Néron, J-P. Monchalin

10:20 – 10:40

**BREAK**

10:40 – 12:20

**Chairpersons:**

**SESSION 8 MANUFACTURING II**

A. Goto (*Osaka Sangyo U.*) – A. Nakai (*Kyoto Inst. of Technology*)

10:40 – 11:00

**LONG FIBER THERMOPLASTIC PET COMPOSITES: FIBER CONTENT AND CONSOLIDATION PRESSURE**

D. Trudel-Boucher, S. Labonté, C. Cridelish

11:00 – 11:20

**SMART COMPOSITES-APPLICATIONS AND PERSPECTIVE**

G. Akhras

11:20 – 11:40

**LARGE STRUCTURAL PANELS USING THERMOPLASTIC COMPOSITE**

Hossein Borazghi

11:40 – 12:00

**FIBRE PLACEMENT OF AEROSPACE COMPOSITE STRUCTURES**

M. Hojjati, J. Chen, A. Yousefpour

12:00 – 12:20 OPTIMAL PRODUCTION PLANNING FOR COMPOSITE WIND  
TURBINE BLADE MANUFACTURING  
W.Y. Wang, M. Chen, S.V. Hoa

12:20 – 13:40 LUNCH

13:40 – 14:20 **PLENARY LECTURE III**  
**Chairperson: J-P. Monchalín (IMI-NRC)**

**TOPICS ON ADVANCED COMPOSITE MATERIALS FOR  
AIRCRAFTS IN JAPAN**  
**Dr. Y. Yamaguchi (KYC Japan)**

14:20 – 15:40 **SESSION 9 DESIGN**  
Chairpersons: Y. Yamaguchi (*KYC-Japan*) – M. Hojjati (*AMTC/NRC*)

14:20 – 14:40 INCREASE OF BENDING STRENGTH AND MAXIMUM  
DEFLECTION OF CONCRETES REINFORCED WITH CFRP STRIP  
G. Ben\*, K. Sakata, K. Saito

14:40 – 15:00 INFLUENCE OF CFRP CABLE DESIGN ON STRUCTURAL  
PERFORMANCE OF HYBRID LONG SPAN CABLE STAYED  
BRIDGES  
H. Almansour, M. Cheung

15:00 – 15:20 STRUCTURAL PERFORMANCE OF LAMINATED FRP BOX GIRDER  
BRIDGE DECK COMPARED TO SLAB ON PRESTRESSED  
CONCRETE GIRDER BRIDGE  
H. Almansour, M. Cheung

15:20 – 15:40 MANUFACTURING OF EVERYDAY ITEMS USING COMPOSITE  
MATERIALS WITH JAPANESE MINGEI DESIGN INFLUENCES  
L. Lessard, A. Richardson, R. Alshiban, S.M. Hughes

15:40 – 16:00 BREAK

16:00 – 17:40 **SESSION 10 MECHANICS OF COMPOSITES**  
Chairpersons: L. Lessard (*McGill U.*) - H. Suemasu (*Sophia U.*)

16:00 – 16:20 DAMAGE ACCUMULATION AND FAILURE OF COMPOSITE  
LAMINATES WITH AN OPEN HOLE UNDER COMPRESSION  
H. Suemasu, Y. Naito, K. Gozu, Y. Aoki

16:20 – 16:40 FREE VIBRATION AND BUCKLING RESPONSE OF WIDTH-  
TAPERED LAMIINATED COMPOSITE BEAM-COLUMNS USING

RAYLEIGH-RITZ METHOD

V.K. Badagi, R. Ganesan

16:40 – 17:00

FREE VIBRATION ANALYSIS OF DELAMINATED LAYERED BEAMS:A DYNAMIC FINITE ELEMENT ANALYSIS (DFE) TECHNIQUE

N.H. Erdelyi, S.M. Hashemi

17:00 – 17:20

NON-LINEAR BUCKLING ANALYSIS OF TAPERED CURVED COMPOSITE PLATE

S. Aklaque-E-Rasul, R. Ganesan

17:20 – 17:40

A RELATIONSHIP BETWEEN IMPACT CHARACTERISTICS AND TAKE-OFF ACTION IN THE RUGBY TACKLE BY PLAYERS WITH DIFFERENT AGE AND COMPETITIVE LEVEL

M. Arai, M. Kume, R. Marui, T. Yoshida, H. Hamada

17:40 – 18:00

**CLOSING REMARKS**