

4th International Conference on Innovative Natural Fibre Composites for Industrial Applications (Preliminary)

October 17-18, 2013

University of Rome “La Sapienza”

Faculty of Engineering

Rome, Italy

Conference Programme



SAPIENZA
UNIVERSITÀ DI ROMA



Sezione di Roma

Ecoengineering
Associazione
Culturale



**Facoltà di
Ingegneria
Civile e
Industriale**

CONFERENCE AIMS AND SCOPE

Sustainable development is increasingly becoming a priority of governments and businesses, which is driven by growing environmental awareness. Academic research and industrial development is broadly exploring new ways to create greener and environmentally friendlier materials for a variety of applications in a number of sectors, including aeronautics, automotive, and construction industry. The “4th International Conference on Innovative Natural Fibre Composites for Industrial Applications”, planned for October 2013, following the success of the three previous conferences held in Rome in October 2007, April 2009 and October 2011, is a good opportunity to investigate the items raised during the round table discussion which ended the last edition (interface, compatibility, bio-resins, toughness, impact, nanomaterials, etc.). The 4th Conference aims to make a concrete contribution to our society, from the scientific community working on novel applications of natural fibres and in the development of new “green composites” and renewable nanomaterials.

The most recent trends of research in this field aim at exploiting the principal advantages of natural fibre reinforcements, such as lightweight, worldwide availability, ease of recycling, sustainability, renewability, thermal and acoustic insulation, lower manufacturing energy and carbon dioxide neutrality. These advantages of natural fibre composites are now more easily quantified through the use of Life Cycle Analysis methodology.

This Conference will provide a forum for discussions involving composite users, leading suppliers, engineers, producers, environmentalists, researchers and technicians from industry and universities to share their experience, to present their latest results, discuss the advantages and disadvantages of the use of natural fibres, analyze the state of the art and future applications. Another objective will be supplying common ground for future collaborations e.g., in European projects.

CONFERENCE CHAIRMAN

Prof. Claudio Scarponi

University of Rome “La Sapienza”

CONFERENCE CO-CHAIRMAN

Prof. Carlo Santulli

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CONFERENCE PROGRAMME

Thursday 17th October

8.30 **Registration** – Cloister of Faculty of Engineering “La Sapienza”-Via Eudossiana18

9.30 **Welcome** Prof.Fabrizio Vestroni (Dean of Faculty of Civil and Industrial Engineering Faculty – Univ. “La Sapienza”) and Prof. Claudio Scarponi (Conference Chairman)

10.00 **KEYNOTE: R. Figueiro**

Session 1a Chair: C. Santulli. – Cloister Room, Via Eudossiana 18

10.30 **Improvement of fibre/matrix adhesion of regenerated cellulose fibre reinforced PP-, MAPP- and PLA-composites by the use of lignin**
N. Graupner, H. Fischer, G. Ziegmann, J. Müssig

10.50 **Flax Fibre Reinforced Engineering Plastic Composites with Flame Retardant Fillers: Processing Parameters and Characterisation**
A. El-Sabbagh

11.10 **Coffee Break** – Cloister of Faculty

Session 1b Chair: S. Kukle - Cloister Room, Via Eudossiana 18

11.40 **Basalt Fibers used as Reinforcing Materials in Different Polymers**
A. Amaro, D. Pinto, L. Bernardo, S. Lopes

12.00 **Improving of uv blocking properties of natural fabric via sol-gel-method**
S. Vihodceva, S. Kukle

12.20 **A study on the thermo-mechanical properties of bio-composites based on polyethylene from renewable sources**
Kuciel S., Skawska W., Kuźniar P., Jakubowska P.

12.40 **A comparison of processing and performance for lignocellulosic reinforced polypropylene for injection moulding applications**
C. Burgstaller

13.00 **Lunch (Cloister of Faculty)**

Session 2a Chair: H. Takagi – Cloister Room, Via Eudossiana 18

- 14.30 **Green metal? A holistic comparison of composites and metal based on the Bioconcept car**
H. J. Endres, R. Barry, C. Habermann, S. Sperling
- 14.50 **Mechanical Properties of Carbonized Natural Fiber Reinforced Composite**
Y. Amemiya, H. Katogi, K. Takemura
- 15.10 **Influence of Hemp Fibers Origin and Content on Low Density Polyethylene Matrix Composites Properties**
S. Kukle, J. Kajaks, O. Nestore, R. Soliženko
- 15.30 **Influence of low velocity impact on tensile static and fatigue behaviour of woven hemp/epoxycomposite**
D. de Vasconcellos, F. Sarasini, M. Pucci, F. Touchard, L. Chocinski-Arnault, C. Santulli, J. Tirillò
- 15.50 **Coffee Break – Cloister of Faculty**

Session 2b Chair: S. Kuciel – Cloister Room, Via Eudossiana 18

- 16.20 **Improvement in Mechanical Properties of Natural Fiber Reinforced Polypropylene Composites Using Phenolic Resin and PVA Impregnation**
G. Nam, B. Berix, K. Okubo, T. Fujii
- 16.40 **Sisal Interstitially Reinforced Composite Fibres: New Modification Method**
A. Ramzy, D. Beermann, L. Steuernagel, G. Ziegmann, D. Meiners
- 17.00 **Naturally Functionalized Silk as Useful Material for Photonic Applications**
S. Toffanin, C. Chieco, V. Benfenati, N. Di Virgilio, S. Cavallini, A. Sagnella, G. Ruani, M. Muccini, R. Zamboni, F. Rossi
- 17.20 **Close**

20.00 – 23.00 CONFERENCE DINNER Casa Dell'Aviatore, Viale delle Scienze n.

Friday 18th October

9.00 **Registration** – Cloister of Faculty of Engineering “La Sapienza” -
Via Eudossiana 18

9.30 **R. Kozlowski, Production, processing and
functionalization of natural Fibers**

Session 3a Chair: N. Graupner – Cloister Room, Via Eudossiana
18

10.00 **Effect of anti-hydrolysis agent on mechanical
performance of polybutylene succinate/bamboo fiber
green composites**
H. Takagi, K. Ohkita, A. N. Nakagaito

10.20 **Silk.it project: silk Italian technology for industrial
biomanufacturing**
S. Toffanin, C. Chieco, V. Benfenati, N. Di Virgilio, S. Cavallini, A.
Sagnella, G. Ruani, M. Muccini, R. Zamboni, F. Rossi

10.40 **Production, Characterization and Performance of
Pultruded Kenaf Fiber Reinforced Composites (PKFRC)**
Hazizan Md. Akil, Muhammad Razak Osman, Mohd. Hafiz Zamri,
Mohd. Helfy Affzan Shahidan and Zainal Arifin Mohd. Ishak

11.00 **Solutions to prevent buckling during complex shape
forming of flax based fabrics**
E. Capelle, P. Ouagne, D. Soulat, S. Guéret

11.20 **Coffee Break – Cloister of Faculty**

Session 3b Chair: Burgstaller C. – Cloister Room, Via Eudossiana
18

11.40 **Extraction and characterization of fibres from Retama
monosperma**
Aizi D., Kaid Harch M.

12.00 **Characterization of sisal-fiber reinforced CNSL composites**
L. Y. Mwaikambo, P. B. Msemwa

12.20 **Improving mechanical properties of green composites by
hybridization**
C. Fragassa, S. De Paola, G. Minak

12.40 **Bamboo Fiber Composites for Structural Concrete
Reinforcement Applications**
D. E. Hebel, A. Javadian, M. Wielopolski, K. Schlesier, F. Heisel, D.
Griebel

13.00 **Lunch (Cloister of Faculty)**

Session 4a Chair: Rossi F. – Cloister Room, Via Eudossiana 18

- 14.30** **Processing and characterization of reinforced polyethylene composites made with waste plant biomass and cellulose fibres isolated from the same biomass**
K. Merkel, H. Rydarowski, K. Janusz, B. Arkadiusz
- 14.50** **The use of Natural Composites for aeronautical Interiors**
C. Scarponi, M. Messano
- 15.10** **Manufacture and research of TPS/PE biocomposites properties**
J. Korol

15.30 **Session 4b POSTER SESSION** – Cloister Room, Via Eudossiana 18

Eco-friendly composites based on thermoset matrix/natural fibers

L. Di Landro, G. Janszen

Hemp raw insulation materials flammability properties

L. Freivalde, M. Andžs, S. Kukle, J. Grāvītis, E. Bukšāns

Electrospun nanofiber composites of microcrystalline cellulose/poly(vinyl alcohol)

A. Sutka, S. Kukle, J. Gravitis

16.00 **Coffee Break – Cloister of Faculty**

16.20 **Conference Closure**

