

334

EUROMECH

EUROPEAN MECHANICS SOCIETY

Final Report

Date: 20.02.96

Please send this report to the Secretary-General of EUROMECH, Professor Bengt Lundberg, School of Engineering, Uppsala University, Box 534, S-751 21 Uppsala, Sweden, within one month after the Colloquium.

General

EUROMECH Colloquium No: 334

Dates: 15.16.17 May 1995

Title: TEXTILE COMPOSITES AND TEXTILE STRUCTURES

Co-Chairman: Mr Patrick DEWILDE

Place and country: LYON - FRANCE

Is there need of another colloquium on the same subject? Which year? 1998. 1999

Finance

Conference fee: 1.000,00 FF

The fee included:

Funding:

See the enclosed effective budget

Accommodation (type and cost):

Meals:

Participation

Number of participants from each country:

Austria	<u>0</u>	Germany	<u>3</u>	Rumania	<u>0</u>
Belgium	<u>6</u>	Great Britain	<u>2</u>	Russia	<u>2</u>
Bielorussia	<u>0</u>	Greece	<u>0</u>	Slovakia	<u>0</u>
Bosnia	<u>0</u>	Hungary	<u>1</u>	Slovenia	<u>0</u>
Bulgaria	<u>0</u>	Ireland	<u>0</u>	Spain	<u>1</u>
Croatia	<u>1</u>	Italy	<u>2</u>	Sweden	<u>0</u>
Czech Republic	<u>0</u>	Latvia	<u>0</u>	Switzerland	<u>0</u>
Denmark	<u>0</u>	Lithuania	<u>0</u>	Ukraine	<u>0</u>
Estonia	<u>0</u>	Netherlands	<u>3</u>	Yugoslavia	<u>0</u>
Finland	<u>1</u>	Norway	<u>0</u>	Others	<u>1</u>
France	<u>15</u>	Poland	<u>0</u>	Total	<u>39</u>
Georgia	<u>0</u>	Portugal	<u>1</u>		

Please turn

Scientific Report

The aim of the Euromech Colloquium 334 "Textile Composites and Textile Structures", concerning the mechanical behaviour of composite materials and structures, has been reached.

The first and the second parts were dedicated to Textile Reinforcement. Textile Composite Characterization has shown that it is still necessary to develop experimental methods to analyse the mechanism and the interaction between fibers and matrix at different scales.

In addition, mixed methods combining numerical calculations and strains or displacements analysis seem to be particularly efficient to identify and evaluate the anisotropic stiffness and the failure criteria of complex composites such as braided composites, knitted composites or woven fabrics.

We have noted that describing the textile reinforcement geometrical architecture is still a real difficulty which implies computer aided techniques. The research and the description of the unit cell using a simplified method could be a real solution for homogenization and thus could minimize the important computations using finite elements.

An interesting part concerns Dynamic and Impact Behaviour of Textile Composite in which 2D or 3D reinforcement change the waves propagation or the delamination failure modes. The dynamic experimental method can also be used for an anisotropic elastic characterization and inverse methods applied to the experimental data treatment can be used successfully.

The last part "Tensile Structures and Textile Application" is essentially dedicated to architectural projects using textile composites. An interesting contribution using a large scale photogrammetry to determine the strain distribution on a three dimensional textile structure allows the validation of computational models. One of the main problems which limits the tensile structure design is still the exact definition of the pattern geometry and the form finding software development which takes into account the rheological properties of textile composites and the exact boundary conditions.

EFFECTIVE BUDGET - EUROMECH 334

INCOMINGS	AMOUNT	EXPENSES	AMOUNT
39 registrations	48.699,49	Mailing	6.591,10
		Meal - Transport	28.443,50
		Proceedings - Rent of the conference room	7.215,00
		Guests	3.400,00
		Secretariat - Varied expenses	17.263,84
TOTAL OF INCOMINGS	48.699,49	TOTAL OF EXPENSES	62.913,44

LIST OF PARTICIPANTS - EUROMECH 334

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BONEILL C.
BRUIJN Nico
CAZZANI A
CHAFRA Moez
CONTRO Roberto
DE ALMEIDA
DE LLORENS DURAN Joseph
DE VISSCHER J.
DU X.W.
EL GUERJOUMA
FRANCOIS Marc
GALASKO Guyla
GELIN Jean-Claude
GOMMERS Bart
HAN Woo-Suck
LAY Béatrice
LEBON Béachlé
LEECH Christophe
LOMOV S.V.
MAURIN + FAYE
MOLLAERT M.
MONCRIEFF
MOUCHTACHI A.
NEMOZ Guy
NOJENKOVA O.
OOMENS Cees
ORSINI Hubert

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PAJUNEN
REMILLAT C.
ROY Annette
SARTORIUS B.
SCARPAS
SEGUIN J.J.
SEMENSKI Damir
SOL Hugo
STUMPF Hauke
TROMPETTE Philippe
VANDERZEN Philippe
WOOD James



Laboratoire Mécanique et Matériaux

UNIVERSITÉ LYON I

L.U.T. A. Génie Civil
43, boulevard du 11 Novembre 1918
69622 VILLEURBANNE CEDEX
Tel. (33) 78 94 88 97
Fax (33) 78 94 69 06

Prof. Bengt LUNDBERG
School of Engineering
Uppsala University
Box 534
751 21 UPPSALA
SWEDEN

20 February 1996

Encl. : 2

Dear colleague,

You will find enclosed the EUROMECH 334 effective budget and the list of participants as well as the final report and the scientific report.

You can notice the financial report is in deficit and my laboratory paid for the corresponding losses.

Please accept our apologies for the late to let you have these documents.

Looking forward to hearing from you.

Yours Sincerely.


Professor Patrice HAMELIN