EUROMECH Final Report

EUROPEAN MECHANICS SOCIETY

Please send this report to the Secretary-General of EUROMECH, within one month after the Colloquium. 357

EUROMECH Colloquium No: 357

Title: MATERIAL IDENTIFICATION USING MIXED NUMERICAL EXPERIMENTAL METHODS

Dates and location: 7 - 9 APRIL 99, MERUMADE, THE NETHERLANDS

Chairman: PROF. HUGO SOL

Co-Chairman: DR. CEES OOMENS

Is there need of another Colloquium on the same or a related subject? Which year? YES, 2000

Full registration fee: 1050 HFL

What other funding was obtained? STW (1000 HFL FOR WELCOME RECEPTION)

What were the participants offered? FULL ACCOMODATION (ROOM, RECEPTION, BREAKFAST, LUNCH, DINNER, COFFEE BREAKS..), CONFERENCE DINNER, IN MAASTRICHT, PROCEEDINGS, SOUVENIR PRESENT

Number of members of EUROMECH (reduced registration fee): 2

Number of non-members of EUROMECH (full registration fee): 34 (+ 3 FREE INVITED PERSONS)

Number of participants from each country:

Austria		Germany	5	Romania	
Belgium	8	Great Britain	1	Russia	
Byelorussia		Greece		Slovakia	
Bosnia		Hungary		Slovenia	1
Bulgaria	1	Ireland		Spain	1
Croatia		Italy	1	Sweden	2
Czech Republic		Latvia		Switzerland	2
Denmark		Lithuania		Ukraine	
Estonia		Netherlands	13	Yugoslavia	
Finland		Norway		Others	1
France	3	Poland			
Georgia		Portugal		Total	

Please turn

Scientific Report

357

Euromech 357 took place in the nice authentic monastry 'Rolduc' in kerkrade, Holland. The objective of Euromech 357 was to bring together researchers to present their latest advancements in the -relativly new domain of Material properties identification by Mixed Numerical/Experimental Methods (MMM). MMM are a modern and increasingly powerful way to determine the values of unknown parameters in a numerical model by observations made on real physical test structures. Starting from the measurement of output values (like displacements, stresses, velocities, vibrations,..) of the real physical test structure, MMM try to update parameters in the numerical model in such a way that the computed observations match the experimental observations. It was shown clearly on the colloquium that the combined use of numerical analysing tools and sophisticated measurement techniques has created an extra degree of freedom for the design of experiments and has led to new approches for material characterization. The colloquium was attended by 39 participants coming from 10 different European countries.

The colloquium was divided into different sessions with the following topics:

Session 1 : Composite materials
Session 2 : Elasto-plasticity
Session 3 : Concrete and soil
Session 4 : Biological materials
Seesion 5 : Damage

There was an invited lecture about estimators by prof. Hua Hongxing (China), an Invited lecture about stochastic parameter identification by prof. Irina Trendafilova (Bulgaria) , an invited lecture by prof. Frank Baaijens (Netherlands) and about 20 presentations by people coming from 12 different countries.
Each presentation was followed by an intensive discussion. Due to the informal atmosphere and the limited number of participants, the discussions were very animated and fruitful. The opportunity to continue to discuss common problems after dinner in a reserved place till 24.00 u was also offered to the Euromech participants. This opportunity and the fact that the monastry was isolated (nobody could escape!) created an excellent platform for discussions and personal contacts.
The second day, a poster session was organised in the evening. The goal of the posters was to serve as a starting point for discussions for those participants who could not give an oral presentation. (The number of presentations was limited in order to create much time for discussions).
As a result of the final discussion the last day, a permanent research group MMM was created. 16 participants offered active cooperation. The main goals of the Research group MMM are to offer a permanent discussion platform, to write lecture notes on some important common topics and to organise workshops (possibly an other Euromech colloquium) in the future.
The common important scientific conclusion of the colloquium was that the necessary demand for succes of MMM is a very accurate numerical model of the experimental set-up and a sufficient information contents in the experimental observation. The mathematics to do the actual updating task were considered as less importance. The research group MMM will work out an in depth analysis of this statements.

Please use additional pages if needed. Put date and signature at the end.