EUROMECH

Final Report

Date: 8/7/91

Please send this report to the Secretary of the European Mechanics Council, Professor Bengt Lundberg, Dept of Mechanical Engineering, Luleå University of Technology, S-951 87 Luleå, Sweden, one month after the Colloquium

General

Euromech Colloquium No: 279

Title: Image Analysis as Measuring Technique in Flows

Chairmen: prof.dr.ir. F.T.M. Nieuwstadt & prof.dr. M.L. Riethmuller

Place and country: Delft, The Netherlands

Dates: 2 - 5 July

Finance

The conference fee Dfl 100 included Lunches, conference dinner, abstract volume

Funding: see sponsors mentioned in abstract volume

Accomodation (type and cost): Hotel agrees Dfl 60 - 120 per night

Meals: -

Participation

Total number of participants: 102 Distribution of participants by country:

Code	Country	Number	Code	Country	Number
A	Austria	-	I	Italy	4
B	Belgium	2	IRL	Ireland	-
BG	Bulgaria	-	N	Norway	-
CH	Switzerland	4	NL	Netherlands	20
CS	Czechoslovakia	-	P	Portugal	1
D	Germany	15	PL	Poland	-
DK	Denmark	2	R	Rumania	-
E	Spain	2	S	Sweden	-
F	France	17	SF	Finland	-
GB	Great Britain	15	YU	Yugoslavia	-
GR	Greece	1	SU	Soviet Union	4
H	Hungary	-	-	Others	9

Is there need of another colloquium on the same subject? Which year? yes, 1993 !

Please turn

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1992

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Date: 11-07-91

SCIENTIFIC REPORT OF THE

EUROMECH COLLOQUIUM 279

"Image analysis as measuring technique in flows"

The traditional measurement techniques in flows (like the hot-wire and laser-Doppler anemometer) are unable to reveal the instantaneous spatial structures in flows. On the other hand, flow visualization clearly shows these structures but only provides a qualitative picture. However, the application of (digital) image processing to flow visualization has enabled the development of new techniques that are able to measure instantaneous spatial velocity or concentration fields. The aim of the colloquium was to provide an occasion for European researchers to present their work on these new techniques and discuss it with fellow-researchers who are also active in this research area. To stimulate the discussion four prominent experts were invited to give keynote lectures on one of the four main topics of the colloquium. These topics were (with the invited speaker between parenthesis):

* "Recent advances in the application of PIV, LSV and PTV", (prof. L. Lourenco, Florida, State Univ.).

* "Theory and principle of PIV methods", (prof. R.J. Adrian, Univ. of Illinois).

* "Visualization methods for fluid flow data sets", (prof. L. Hesselink, Stanford University).

* "Contribution of microholography to 3-D flow measurements", (dr. H. Royer, Institut Saint-Louis).

A fifth invited speaker was dr. R. Meynart, who was involved in the early applications of these techniques in fluid mechanics. His lecture on "the past of PIV" started the colloquium.

For the announcement of the colloquium a survey was made in relevant journals and conference proceedings on authors who presented work on the colloquium topic. Announcements were made in journals and on conferences.

The response was quite large and almost all the submitted abstracts were selected for oral or poster presentation. In addition a large number of requests for invitations were received from people who are interested to apply these new techniques in their future research. Because of the rapidly growing interest in this topic (and from the fact that these people would also benefit from the opportunity to meet people who are actively involved in the development and application of these new techniques) it was decided to allow a restricted number of observers to attend to colloquium.

The contributions of the invited speakers served as both an introduction and reference for the contributions of other authors. Most presentations led to enthousiastic and stimulating discussions (which sometimes had to be interrupted by the session chairman to avoid too large delays in the program). These discussions were ususally continued during one of the coffee or lunch breaks. During these breaks people were exchanging ideas or were discussing problems in their own applications.

The posters could be visited throughout the colloquium. On the third day there was a special poster session, in which an author could present the main points. of his or her poster in a few minutes, followed by a short discussion. The response to this kind of poster session was very positive from both the authors and the audience.

From the general response of the participants, invited speakers and local organizing committee we conclude that the colloquium was very succesful and very stimulating for all the people that were involved.

The colloquium demonstrated the need for regular meetings on these new optical measurement techniques for (European) researchers.

A special issue of Applied Scientific Research dedicated to this colloquium is in preparation.

As further information I enclosed with this report a list of participants and a copy of the abstract volume.