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President's Introduction

The appeal to members of the EUROMECH *Society for comments on the general idea of awarding a* EUROMECH *Fluid Mechanics Prize and a* EUROMECH *Solid Mechanics Prize has been successful. There were 95 replies from members, 88 of whom fully supported the initiative of the* EUROMECH *Council. 52 replies came from members mainly interested in solid mechanics and 43 from those in fluid mechanics. The spread over countries (23) was satisfactory, although 46 replies came from Germany, the UK and France alone.*

The majority of members agreed without further comment but there were some suggestions which should be mentioned:

(1) *Who preferably should get the prize, i.e. which criteria are important?*

Highlight outstanding personalities and their research career (3 votes).
Real achievement in hard science, a discovery or definite new ideas (3 votes).
Opening up new alleys of research or work in interdisciplinary fields (3 votes).
Impact on scientific and technological practice (1 vote).
The age of the prize-winner should be less than 40 years (6 votes).

(2) *Selection committee*

In order to represent the full breadth of the subject the selection committee should be larger than suggested in the proposal (14 votes).
A vote on nominations of candidates published in the Newsletter by the members of the EUROMECH *Society (4 votes).*

As for the dissenters, there was one straight "disagree", 5 further members had qualms that the selection process was too troublesome or too much work for the selection committee and one member remarked that science cannot be measured and that he was afraid that the selection process would be unfair.

The suggestions put forward will certainly influence the deliberations of the Council at the meeting in April 2002.

Finally, let me remind you that it is now the time (before the beginning of March 2002) to suggest proposals for EUROMECH *Colloquia in 2003 and 2004.*

With the season's greetings and my very best wishes for a successful and peaceful year 2002.

Hans-Hermann Fernholz
President, EUROMECH

Contents

Chairman's Address 1

Addresses for EUROMECH Officers 2

G.K.Batchelor. *Opening Address for EETC, Lyon 1986* 3

EUROMECH. *Chairpersons' reports for certain Colloquia in 2001* 8

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OPENING ADDRESS at the FIRST EUROPEAN TURBULENCE CONFERENCE*,

by
G.K. Batchelor
Lyon 1 July 1986

I am grateful to the Organizing Committee for inviting me to deliver this opening address. It gives me the opportunity of welcoming you to the European Turbulence Conference, and I do so warmly on behalf of the European Mechanics Committee, under whose auspices the Conference is being held. I do not need to thank you for coming here, because, if the Conference is as interesting as the programme suggests it will be, you will be the beneficiaries. But I am glad you *are* here, since this gathering of people interested in the turbulent motion of fluids is the culmination of the preparatory work undertaken during the past year or two by the Local Organizing Committee under the chairmanship of Professors J. Mathieu and G. Comte-Bellot, and it is gratifying that their noble efforts should be rewarded by your presence.

We are also indebted to the broader international parent body which arranged with Professors Mathieu and Comte-Bellot for the first European Turbulence Conference to be held at Lyon. This broader international body is a subcommittee of turbulence specialists in Europe under the chairmanship of Dr. J.C.R. Hunt, which has planned the general character of the Conference, which will remain in being and will assess the need for further European conferences on turbulence. You may be wondering, of what body is this a subcommittee, and the answer is that it is a subcommittee set up by the European Mechanics Committee to examine the need for conferences on Turbulence in Europe. I have the honour to be Chairman of the European Mechanics Committee, and it is in that capacity that I am addressing you.

Talk about committees is much less interesting than talk about turbulence, but it is more easily understood, and since it is unlikely you know much about the European Mechanics Committee I should like to tell you briefly about the philosophy that underlies its existence and its work. The European Mechanics Committee consists of about 12 members drawn from the different countries of Europe and selected for their active involvement in research in the various branches of mechanics. They have no connection with any national bodies, and for that reason their names are known to few people. The function of the Committee is to foster research in mechanics in Europe by promoting friendly and fruitful contact between scientistsin the different countries. There are of course very many international organizations with generally similar objectives, but this one is a little unusual in that the Committee has strictly limited ambitions and is content to

*With the approach of the 9th Euromech Turbulence Conference in 2002, it seems appropriate to remind members of the origin and general idea of this meeting.

operate without income or premises or secretariat or publications. The Committee operates by stimulating appropriate action by individual scientists, and in this role it can claim a certain measure of success.

The Euromech idea originated at a meeting in 1964 of a small group of like-minded people who were concerned about the harmful effects of the national divisions of Europe on progress in research in mechanics. Europe is a region of extraordinary diversity which developed through a period of many centuries in which the homogenizing factor of good communications was absent. The diversity is now represented in strong differences in language, history, art, social customs and political systems, and is the source of Europe's cultural richness, making it a fascinating place for both visitor and resident. But there is a price to be paid, in science in particular. The healthy development of science needs both diversity of ideas *and* good communications between scientists having different ideas. Europe has the former but is deficient in the latter, relative to other regions with comparable total populations such as North America. The group that got together in 1964 noted that Swedes and Spaniards seldom met at conferences, that Germans and Italians were not familiar with each other's scientific literature, that British scientists knew more about current developments in their field in USA than those in France; and, most seriously, that the political divisions between east and west Europe had greatly restricted contacts with scientists in the socialist countries of Europe. We concluded that there was need for positive action to improve communication between scientists in Europe, and that it was not sufficient to rely on the natural wish of scientists to know what their colleagues abroad are doing.

The next step was to find a way of achieving this which would lie within our powers. There was no point in appealing to the relevant international union, viz IUTAM, because the statutes of these unions preclude them from taking action in the interests of a specified group of countries. Moreover, we were disposed to remain at a distance from the various relevant national committees and societies in order to avoid the risk of encountering nationalism in any form. I cannot remember whether we considered approaching some European scientific agency to tell them about our concerns; perhaps none existed at that time. At all events, we saw no alternative to doing something ourselves. We therefore considered how we might best improve communications between scientists in the different countries of Europe and promote the exchange of ideas in the field of mechanics. Direct person-to-person contact is much the most effective basis for communication about work in progress, and a conference is an efficient device for enabling many personal exchanges to occur. Many conferences were being held each year (although fewer than nowadays), but on taking stock of the situation in mechanics it appeared to us that few of them set out to encourage the exchange of ideas on a well-defined topic, few of them provided convenient opportunities for one European to meet another, and many of them were expensive and so out of reach of young people.

Out of those observations was born the idea of a Euromech Colloquium, which was to be a discussion of current research on a specified and relatively narrow topic, by

a gathering of about 50 specialists chosen as individuals for their active involvement in research in that topic, at a readily accessible location in Europe, organized simply by one or two selected scientists of standing in the topic and with minimum paper-work and under conditions which would keep down the cost and maximize the opportunities for informal discussions. That was the formula, and the first trial was Euromech 1 held in Berlin in April 1965 on the topic "Boundary layers and jets along highly curved walls" under the chairmanship of Rudolf Wille. The participants liked the meeting, and so two more were held in 1966, and then four more in 1967. The formula has continued to be used, with very little modification, and now about 14 Euromech Colloquia are being held each year. The total held so far is 210, and we are especially pleased that 43 of them, about 20 percent of the total, have been held in eastern Europe. A new type of international scientific meeting has been tried and tested and found to be successful, and is now being used extensively for discussions of current research in mechanics in Europe.

All these Euromech Colloquia have been planned by the European Mechanics Committee in the sense that the Committee considered and approved the topic and location and the chairman to whom the detailed organization was to be entrusted. The Committee make available a set of notes or guide-lines on the organization of Euromech Colloquia, but otherwise the Chairman of a Colloquium is wholly responsible for the preparation and the running of the meeting. The Chairman gets no money from the Committee, and each Colloquium is expected to be self-supporting and to be arranged with a modest accommodation cost and the least possible registration fee. Despite claims to the contrary which are sometimes made, these austere conditions are wholly consistent with a high standard of the scientific exchanges; a friendly informal atmosphere proves to be more important than lavish hospitality and heavy conference proceedings.

With Euromech Colloquia now a going concern, the European Mechanics Committee turned its attention two years ago to the possible need for occasional European conferences on a larger scale than Euromech Colloquia. It was put to us that European scientists working on certain broad topics, turbulence in particular, are not well provided with opportunities of exchanging ideas with each other. There are several regular international conferences on turbulence, but the Committee were told that research groups in Europe would welcome being able to discuss developments in all aspects of turbulence - laboratory observations, mathematical theory, numerical simulations, geophysical flow systems, and engineering applications - and in more depth than is possible at large-scale conferences. The European Mechanics Committee was sufficiently impressed by the evidence to set up the Turbulence Subcommittee which I have already referred to and to ask it to advise on the need for a European Turbulence Conference. The Turbulence Subcommittee said yes, there was a need, and they also reported that Professor Mathieu and his colleagues were willing to organize such a conference at Lyon. The European Mechanics Committee consequently decided to approve the holding of this conference as the first of a second type of scientific meeting in Europe. There may be others to come, perhaps on turbulence and perhaps on other

broad topics in mechanics; experience with this meeting will obviously be taken into account.

I have inflicted this talk about committees on you in order to show that the divisive influences of national history, languages and politics in Europe are being countered to some extent by positive action in a small corner of science. Scientists probably benefit more than any other professional group from improved international contacts and communications, and, through having a powerful common interest, they have the resources to bring about these improved communications. We normally have our heads down and immersed in discussions of scientific problems, but it is worthwhile to reflect on the wider issues from time to time and to consider what might be done to improve the situation. Better communications between scientists in different countries with different languages and social and political systems do not come about spontaneously; their realization needs careful thought and patient action. The potential gains are considerable however, because aside from the direct benefit to science, each new exchange of ideas across a national boundary and each new friendship between scientists in different countries is a small contribution to international understanding and so to international amity.

Turning from the form to the substance of this meeting, it pleases me personally that the subject of this first Euromech medium-sized conference should be turbulence. I spent the happiest years of my scientific life thinking about problems of turbulent motion of fluids, and although my research is now directed to other areas of fluid mechanics, turbulence will always be for me one of the most attractive and interesting challenges to an enquiring mind. Part of the charm of the subject is that a satisfactory understanding of turbulent flow seems not to get any closer! In his classic text on hydrodynamics Horace Lamb wrote, at the beginning of a section on turbulent motion in the penultimate chapter: "It remains to call attention to the chief outstanding difficulty of our subject". That remark appeared first in the second edition published in 1895 and it was repeated without change in all subsequent editions, the last being published in 1932. I have no doubt that if Lamb were preparing another edition today, he would still regard turbulence as the "chief outstanding difficulty of our subject".

The reason why turbulence has continued to be, as Lamb puts it, a "difficulty", is certainly not that study of the topic has been neglected. I think most people would agree that the three giants of mechanics during the first half of this century were von Karman, Prandtl and G.I. Taylor. All three devoted many years to the study of turbulence and made outstanding contributions; and it is surely no coincidence that turbulence was probably the main interest of each of them. They recognized turbulence, as Lamb did, as the central and most important problem in fluid mechanics. Others have followed their lead, and the number of papers describing basic studies of turbulence published in the Journal of Fluid Mechanics has consistently been roughly 10 percent of the total during the past 30 years and has increased slowly during that time.

There is thus an apparent paradox, that although turbulence has attracted many strong research groups and many of the best minds in fluid mechanics during the past century, a proper understanding of the phenomenon appears to be as remote as ever. My explanation of this is that turbulence is not a well-defined problem awaiting solution but is a state of motion with innumerable different facets which depend an the context in which it occurs. We do not regard the state of laminar flow as a single problem; much less should turbulence be thought of as a single and soluble problem. The properties of turbulence are flow dependent, and therein lies the difficulty. Each turbulent flow field which is studied reveals new aspects of turbulence, and we are a very long way from being able to assemble a comprehensive physical description of this many-sided state of motion. There is some folklore in Cambridge to the effect that Horace Lamb said he hoped he would understand the problem of turbulence before he died. Well, he was presumably disappointed when he died, and we now see that it was an unreasonable hope. He would have needed first to understand all laminar-flow dynamics, rheology, and the statistical mechanics of systems with strong interactions; and that would have been only a beginning.

Mr. Chairman, I do not want to hold up the real proceedings any longer, since we are all keen to hear about recent developments in the study of turbulence at this Conference. We shall listen and look with interest; and those who have invested time and effort and material resources in preparation for investigations of turbulent flow need not fear the announcement of some development which will render their further efforts unnecessary. I am sure that each new result which is put forward will raise further questions for study, and that turbulence specialists can look forward to many happy years of enquiry into this most fascinating of fields.

EUROMECH Colloquium 421
Strongly-Coupled Dispersed Two-Phase Flows

Chairpersons: A. Cartellier (LEGI, Grenoble), J. Leblond (PMMH, Paris)

EUROMECH 421 took place from September 10 to September 12, 2001 at LEGI in Grenoble. The colloquium was attended by 60 scientists with 8 coming from four countries outside Europe and Russia. 15% of the participants were research students. Lunch was provided on-site to encourage discussion. The sessions were sometimes so lively that it was difficult to keep to the time schedule.

The scope of EUROMECH colloquium 421 was to review current advances in the dynamics of dispersed flows whose two-phase character is strong enough to alter the continuous flow field through phase coupling, particle-particle interactions, collective behaviour *etc*. A major aim of this meeting was to favour interaction between different scientific communities (physicists, fluid mechanicians, chemical engineers, applied mathematicians) and to confront their visions and experience of a variety of dispersed flows.

The five invited lectures of 40 minutes each provided a fairly complete picture of the available modelling approaches and of their capabilities.

- *Linear dynamics of suspensions*, by Ubbo Felderhof, RWTH, Aachen, Germany.
- *Modelling dispersed two-phase flows: Lessons from thermodynamics of molecular mixtures,* by Anjani Didwania, UCSD, USA.
- *Turbulence modification in dense dispersed two-phase flows*, by Olivier Simonin, IMFT, Toulouse, France.
- *Multiscale modelling in two-phase flows,* by Iztok Zun, Univ. of Ljubljana, Slovenia.
- *Experiments on buoyancy-driven bubbly flows at low and high void fractions*, by Michel Lance, LMFA, Lyon, France.

Some proposals toward operational computations of complex systems, notably including inclusion deformation, collective effects and highly-dispersed phase fractions were debated.

Forty-five oral presentations of about 20 minutes each were organised in the following six sessions:

1: Suspensions, particle-induced agitation, microstructure and screening mechanisms.

2: Hydrodynamic interactions, dispersion.

3: Turbulence modulation by particles, droplets or bubbles in dense systems.

4: Collective effects in dispersed two-phase flows, clustering and phase distribution.

5: Large-scale instabilities and gravity driven dispersed flows.

6: Strongly coupled two-phase flows involving reacting flows, phase change.

In most sessions, key results on particle scale phenomena were combined with average behaviour of multi-body systems as revealed from experiments, simulations or models.

The dynamics of reputedly "homogeneous" systems were especially well covered, with studies ranging from vanishing to large particle Reynolds numbers, and from dilute to very dense systems. In particular, various mechanisms, some of them new, controlling velocity fluctuations were thoroughly discussed.

During sessions 3 – 4, talks emphasised how to account properly for particle-turbulence interactions and how to incorporate clustering effects in models. New ideas have emerged concerning the interpretation or the role of turbulent production and dissipation terms. In parallel, experimental contributions enlightened the complexity of phase distributions, both in simple geometry and in the vicinity of localised singularities.

Session 5 on large-scale instabilities provided a particularly interesting panorama of current questions arising from industrial up to natural scales and involving bubbles as well as solid particles. During the last session, somewhat less "conventional" two-phase flows, often related to important applications were presented, and specific modelling needs were identified, notably for flows involving phase change, coagulation or break-up.

The colloquium ended with a general discussion where challenging questions in dispersed two-phase flows were raised. Notably, a need for well-controlled experiments involving deformed inclusions or extended size distributions was identified. It was also agreed that a better understanding of dispersion mechanisms, relevant for analysing phase distribution, large scale instability and mixing, is required, and this is especially true for shear flows. Clearly, research in dispersed two-phase flows is very active.

The banquet held on the second day provided another opportunity for exchanges and it was enjoyed by participants. Post-colloquium reactions of the attendees were quite positive with regard to the effectiveness of the meeting, its informal atmosphere and its organisation.

A booklet of abstracts has been prepared and distributed to participants.

Research in the field of dispersed systems is very active (with a highly significant participation from Europe), and it should be so for many more years since many "old" fundamental problems are still unsolved while new fundamental questions arise from more demanding applications. There is certainly a need for another colloquium on similar topics within 3 – 4 years.

EUROMECH Colloquium 423
Boundary Layer Transition in Aerodynamics

Chairpersons: S. Wagner, M. Kloker & U. Rist (Stuttgart)

The meeting took place on April 2nd – 4th, 2001, in the excellent Bildungszentrum Südwest of German Telekom AG where the participants also had their rooms. Thus they could stay close to the venue and also meet and discuss outside the official program. The symposium was attended by 68 scientists from 8 countries including the USA; 41 lectures were given, including 10 by participants in the German national co-operative research program (Verbund-Schwerpunktprogramm) "Transition". Due to the success of the "Transition"-EMC 359 held at the same place under similar conditions in 1997, 18 abstracts more than could be accepted were sent, and a selection had to be made. Since there were no parallel sessions and no posters, all contributions were treated equally with about 30 minutes each, except for 5 keynote lectures of about 45 minutes. From the very beginning the organisers urged the chairmen to reserve sufficient discussion time after each lecture, and soon a lively seminal scientific atmosphere arose that was appreciated with great pleasure (in contrast to the usual speak-as-fast-and-short-as-possible-conferences).

The colloquium was divided into 9 sections taking into account the different stages and aspects of transition. The first subject was "receptivity", the filtering process bringing disturbances from the free stream into the boundary layer. The lecturers reported on theoretical as well as experimental results. Including William Saric´s (USA) keynote lecture, 4 lectures were given. A main topic was how to separate superposed sound and instability waves clearly.

The next subject was transition in "two-dimensional boundary layers" with 9 lectures dealing mainly with late stages – formation/dynamics/breakdown of flow structures – and so-called by-pass mechanisms. The latter lead to turbulence without wave-like instabilities. These “streak instabilities” were reported in the keynote lecture of Henrik Alfredsson (S) and 3 other lectures.

The main session of the second day comprised 7 lectures and treated receptivity, linear and non-linear instability and disturbance control in swept-wing boundary layers with cross-flow. The material presented definitely showed that the secondary instability of saturated steady or unsteady cross-flow vortices is of convective and not of an absolute nature; also, the secondary mechanisms work equivalently for both steady and unsteady primary disturbances. The primary cross-flow instability can be strongly influenced by a so-called three-dimensional upstream flow deformation by vortices with smaller spanwise spacing than the most unstable modes. Three other lectures on transition control concluded the sessions of the second day.

In the evening a buffet dinner took place at the university's international meeting centre, the "Eulenhof", where the scientists could discuss and talk "purified by

wine". The video "A Nose Ahead" on flight experiments with boundary layer suction by G. Schrauf, EADS Airbus, and other demonstrations were an informative and entertaining addition to the program.

The third day started with three lectures on industrial application aspects of transition prediction methods, with the keynote lecture given by Daniel Arnal (F). It turned out that the exp(N)-method is still routinely used, despite its flaws, for 3-D boundary layers; the physically more sound prediction based on the parabolised stability equations requires accurate initial disturbance amplitudes that cannot reliably be provided yet. The "prediction" session was followed by three other lectures dealing with aspects of transition measuring techniques, also in supersonic flow.

Transition in super- and hypersonic flow was a main subject of EMC423. The survey by Anatoly Maslov (RU) was followed by 8 lectures. The necessity for and difficulties of "controlled" transition experiments were underlined, and a measurement method based on the constant voltage hot-wire anemometer for high frequencies was presented. In a direct-numerical-simulation study it was found that for fundamental resonance associated with a primary acoustic disturbance the secondary mode also has to be of the acoustic type if resonance is to set in effectively. Hermann Fasel (USA) finished the symposium with a lecture on a new methodology for flow simulations, which is an alternative method to traditional Large-Eddy Simulations; it continuously switches, depending on local criteria, between a direct numerical simulation (DNS) and the solution of the Reynolds-averaged equations (RANS). The examples shown were encouraging.

EMC423 was a very successful event. All participants enjoyed the warm but nevertheless not uncritical atmosphere. A third of the participants were Ph.D. students. Here we again take the opportunity to thank the national research council (DFG), the University of Stuttgart, EADS Airbus, airport foundation Frankfurt/Main, AEA Technology, EUROMECH, Daimler Chrysler and Porsche AG whose sponsorship allowed 10 Russian scientists to take part in the meeting. Besides, selected young scientists from all the participating countries could be reimbursed for their conference fee.

EUROMECH Colloquium No: 425
Nonlinear Dynamics, Control and Condition Monitoring

Chairpersons: M.Wiercigroch & A.A.Rodger (Aberdeen), E.Kreuzer (Hamburg)

EUROMECH 425took place between 20th and 24th August 2001 at the Department of Engineering, Aberdeen University (UK). The meeting was devoted to recent advances in nonlinear dynamics, control and condition monitoring of engineering systems and structures. The meeting demonstrated that across the spectrum of European mechanics more and more emphasis is laid on the practical applications of theory in interdisciplinary research. In addition to EUROMECH the conference was sponsored by the London Mathematical Society and the University of Aberdeen.

There were 69 participants from 20 different countries – and four continents. Members of the local organising committee together with Ph.D. students boosted the total number to 79. There were 68 presentations delivered in six mini-symposia as listed below together with their organisers:

(i) new methods and techniques in nonlinear mechanics (Celso Grebogi)
(ii) nonlinear mechanics of mechanical systems (Marian Wiercigroch)
(iii) nonlinear dynamics of civil engineering systems (Giuseppe Rega)
(iv) nonlinear dynamics of electrical systems (Yoshishuke Ueda)
(v) control of dynamical systems (Mathew P. Cartmell)
(vi) condition monitoring of engineering systems (Albert A. Roger)

The Colloquium opened with a lecture given by Celso Grebogi (University of San Paulo) on *"shadowing and the validity of dynamical models*". A pioneer of chaotic dynamics in electrical systems, Yoshishuki Ueda gave an interesting historical account of his ground-breaking research at Kyoto University. These attracted vigorous discussion and proved to be effective stimuli throughout the meeting, which enjoyed a further eleven plenary lectures and 47 invited presentations. The largest mini-symposium was devoted to the nonlinear dynamics of mechanical systems and attracted 23 presentations. In addition to the lectures and discussions, there were two experimental demonstrations – of "dynamics and fatigue" and "chaotic dynamics of a rotor system with a clearance" – in the Dynamics Research Laboratory of the University of Aberdeen.

More detailed information on the programme and other aspects of the conference can be found at www.eng.abdn.ac.uk/~eng373/Euromech/index.htm.

During the conference numerous fruitful discussions were conducted, new friendships and collaborative links were born, and participants had a fair chance to sample Scottish hospitality and culture. As a part consequence 15 new members decided to join the European Mechanics Society during the Colloquium.

EUROMECH Colloquium 426
Swirling Flows

Chairpersons: H.I.Andersson (NTNU, Trondheim),
S.V.Alekseenko (ITP, Novosibirsk)

EUROMECH 426 was organized jointly by the Norwegian University of Science and Technology (NTNU) in Trondheim and Institute of Thermophysics in Novosibirsk and took place on board a vessel sailing from Bergen to Tromsø on September 16th – 20th 2001. The colloquium was also approved by the ERCOFTAC Scientific Programme Committee as an ERCOFTAC event. There were 38 participants from 11 countries, 5 from outside Europe (i.e. eastern Russia). There were 38 oral presentations, of which 4 were extended keynote introductions.

The aim of the colloquium was to provide an opportunity for European scientists to present and discuss the outcome of their latest research on swirling motions in inviscid, viscous and turbulent fluid flow. Swirling flows occur in a wide range of applications, both in geophysics and engineering. The intention was to bring together people from different fields of applications, as well as a mix of theoreticians, experimentalists and computationalists, in order to highlight unresolved issues and enhance understanding of the complex flow physics associated with swirling flow phenomena. This was achieved in a friendly and informal atmosphere while the scenic coastline of Norway passed by outside the conference room.

The presentations were grouped into thematic sessions according to their subject area: vortical flows I & II, rotor-stator flow, stability and vortex breakdown, confined flows, system rotation, coherent structures, and applications. Some of the sessions were opened with a keynote lecture to set the scene. These were:

Coherent and Vortical Structures by S.V. Alekseenko (Institute of Thermophysics, Novosibirsk)

Confined and Agitated Swirling Flows by J. Derksen (Delft University of Technology)

Intense Columnar Atmospheric Vortices by D. Etling (University of Hannover)

Rotating Disks and Swirling Flows by J.M. Owen (University of Bath)

A book of abstracts was made available to the participants, who have been invited to submit full-length manuscripts to the international journal *"Flow, Turbulence and Combustion"*.

EUROMECH Colloquium 427
Computational Techniques and Applications in Nonlinear Dynamics of Structures and Multibody Systems

Chairpersons: I.Ibrahimbegovic (Cachan), W.Schiehlen (Stuttgart)

EUROMECH Colloquium 427 took place at the ENS Cachan on September 24th – 27th 2001. There were 58 participants from 10 European countries, with 9 other attendees.

As intended the meeting brought together scientists active in the fields of computational mechanics of structures and multibody systems. The two communities have common interests in that

- structural dynamicists are becoming interested in handling large nonlinear displacement motions

while

- multibody dynamicists have to consider flexibility and structural vibrations.

In discussion and in the presentations we learnt a great deal from each other, and therefore feel that the colloquium was a great success. Multibody System Dynamics manifested itself as a very lively research topic covering

- modelling of nonholonomic systems
- discretisation of structural systems
- nonlinearities due to aeroelasticity, plasticity, friction and fracture
- impacts and contact problems of discrete and continuous systems
- application to biomechanics, vehicles and mechanisms
- simulation and optimisation of finite element and multibody systems

A number of young researchers presented their work, and had the opportunity to examine the interdisciplinary aspects of dynamics and interact directly with experienced researchers from many European countries, as well as several guest speakers from the most active research universities in the USA.

The LMT Cachan provided an ideal setting for a EUROMECH meeting. The LMT is known as a strong research group and in addition to providing a pleasant lecture hall made available visits to the laboratories. A banquet on the last night allowed for some experiments on multibody systems with soft parts and highly advanced controls.

Special issues of *Computers and Structures* and *Multibody System Dynamics* should appear in 2002 containing extended presentations of selected Colloquium papers.