
Guest Editorial

SPECIAL ISSUE ON TURBOMACHINERY

INTRODUCTION

Previous Turbomachinery special issues of this Journal have followed earlier European Turbomachinery Conferences. This tradition continues with the current Special Issue derived from the 5th conference. These Special Issues provide a valuable core of high quality Turbomachinery papers for Proceedings Part A, covering interesting and topical subjects. The papers have been evaluated as Journal standard through the thorough review procedure of the conference. That selection has then been scrutinized and confirmed by the conference organizing committee. Final acceptance has been established by a further review of these conclusions by two members of the Editorial Board of this Journal.

C T J Scrivener

Editor

GUEST EDITORIAL

Since it started in 1995, the success of the European Turbomachinery Conference has been steadily growing both in terms of number of papers and of participants. With 107 papers and nearly 240 participants at the 5th meeting in March 2003 in Prague it has established itself as the prime event for European turbomachinery research in fluid dynamic and thermodynamic aspects. It is also the only international conference that covers not only gas turbines and compressors but also steam turbines and hydraulic machines. The Conference has also become an integrating factor between the East and West, as witnessed by the strong participation from East European countries both in terms of participants and numbers of submitted papers. However, the success of a conference is measured not only by quantity but also, and even more significantly, by the quality of the content. The latter depends to a great deal on a thorough review process allowing a proper evaluation and grading of the papers and the elimination of weak papers. Nearly 20 per cent of the papers received were not accepted for presentation at the conference, and as a result conference participants rated 78 per cent of the papers as good or excellent. It is worth noting that the participation of industry is also growing, with representatives from 27 industrial organizations, and 35 per cent of the papers authored or co-authored by industry. Fifteen of the best papers have been selected for publication in the present volume. Papers which, in particular, seem to be at the leading edge of turbomachinery research are: the calculation of wake-blade interaction, specifically comparing direct numerical simulation with large eddy simulation and unsteady Reynolds-averaged Navier–Stokes simulation; active control of aerodynamic performance and tonal noise of axial turbomachines; stereoscopic PIV measurements in a transonic axial turbine resolving the trailing edge wake vortices; and the identification of a deterministic natural transition mechanism for wake-blade interactions.

In spite of the many positive aspects of the conference the organizing committee was disappointed by the lack of contributions on active flow control (with two exceptions) and in particular the total absence of MEMS-based (Micro-Electronic-Mechanical-Systems) flow control and instrumentation. MEMS-based turbomachinery technology is an emerging research area which is very actively followed in the US, and both the ASME and AIAA conferences have devoted special sessions to this field for a number of years. The absence of presentations on this subject implies that, to-date, there is very little research going on in Europe in this area, in contrast to what happens in other fields such as biomedical and automotive applications. The problem is that the vision of MEMS application to turbomachinery is

at medium and long range. It is most regretful that in successive European Frame Work Programmes the part for fundamental research with long term vision has gradually decreased with time, and it appears that the new FP6 research programme is more than ever dominated by industry needs with short or, at best, medium range perspectives. As a result, the European turbomachinery research community is suffering more and more from the lack of funding for fundamental long-term research. I would like to take this opportunity to address a plea to the European Commission to reserve a larger part in future calls for proposals within the FP6 programme for long-term fundamental research. It is only by this means that, in the long run, European turbomachinery research will remain competitive on the international scene and not lose out in the struggle for market share.

In order to not end this Editorial on a too critical note with respect to European research policy, I would like to express my sincere thanks to the European Commission for their continuous support for the organization of this conference. It is the ideal forum to present and publicize research results from European projects, as witnessed by the large number of papers acknowledging European support.

My last words of thanks go to Professor M. Stastny for the excellent organization of the conference in Prague, and I already look forward to the 6th European Turbomachinery Conference which will be organized by Professor G. Bois in March 2005 in Lille.

C.H. Sieverding

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