Computer Aided Optimum Design in Engineering IX

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Published by

WIT Press
Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK
Tel: 44 (0) 238 029 3223; Fax: 44 (0) 238 029 2853
E-Mail: witpress@witpress.com
http://www.witpress.com

For USA, Canada and Mexico

Computational Mechanics Inc
25 Bridge Street, Billerica, MA 01821, USA
Tel: 978 667 5841; Fax: 978 667 7582
E-Mail: info@compmech.com
http://www.witpress.com

British Library Cataloguing-in-Publication Data

A Catalogue record for this book is available
from the British Library

ISBN: 1-84564-016-0
ISSN: 1746-4498 (print)
ISSN: 1743-3509 (on-line)

The texts of the papers in this volume were set individually by the authors or under their supervision. Only minor corrections to the text may have been carried out by the publisher.

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Printed in Great Britain by Athenaeum Press, Gateshead.

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PREFACE

Engineers and designers at large have always aimed for the best performance for their prototypes. To obtain that, objective engineering intuition and long time honoured rules and experience were usually the main allies in the design process. Nevertheless, increasing complex engineering task, more competitive industrial environment and technological changes ask for more powerful design tools. In that regard design optimization methods constitute an ideal approach for improving the behaviour of the prototypes under study, leading them to the best. The benefits of using such techniques are not only that the product always has a much better design; in addition to that the engineers can nurture their design skills in a rational way and, thus, perfecting their professional capabilities.

The OPTI Conferences are a series of scientific meetings devoted to such a field. This book contains most of the papers presented in OPTI 2005 held during May of 2005 in the Greek island of Skiathos. The eighth previous editions took place in Southampton, UK (1989); Boston, USA (1991); Zaragoza, Spain (1993); Miami, USA (1995); Rome, Italy (1997); Orlando, USA (1999); Bologna, Italy (2001) and Detroit, USA (2003).

Contents of the papers in the book range from innovations in numerical methods, enhancing the current capabilities of existing algorithms to practical applications on structural optimization, mechanical, car, civil engineering and mining engineering, manufacturing and some other industrial examples. Also, implementations in new emergent fields as biomechanics or problems solved in fluid-structure interactions are present in the text. Overall, the list of research works show the maturity of optimization techniques and the vast number of disciplines they can be applied to.

Consequently, this volume constitutes a valuable addition to the existing literature on design optimization. The Editors would like to express their gratitude to all authors for their contributions. Also, they are indebted to the members of the International Scientific Advisory Committee of OPTI 2005 who reviewed the papers efficiently and promptly, thus ensuring the technical quality of papers and the success of the Conference.

The Editors
May 2005

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