

# International Journal of **Aerospace Innovations**

**Volume 1 · Number 1 · March 2009**



**Multi-Science Publishing**  
**ISSN 1757-2258**



# International Journal of **Aerospace Innovations**

**Volume 1 • Number 1 • March 2009**

## **Editorial**

Dr. G. Jagadeesh.....i

## **A New Modular Approach for Tightly Coupled Fluid/Structure Analysis**

GP Guruswamy.....1

## **Optical Altitude Sensor Based on Pressure Sensitive Paints (PSP)**

Ashiq Hussain Khalid and Konstantinos Kontis .....11

## **Applications of Shock Waves in Agriculture Research**

G. Jagadeesh and K.N. Nataraja.....23

## **Supersonic Drag Performance of Truncated Cones with Repetitive Energy Depositions**

Takeharu Sakai.....31

## **Development of an Experimental Facility for Impact Testing of Armour Plates**

M. Raguraman, G. Jagadeesh and A. Deb .....45



# Editorial

I am very happy to present to you the first issue of the “International Journal of Aerospace Innovations” (IJAI). This journal is the culmination of the sustained efforts of many scientists/academicians working in various research laboratories around the world, who felt the need for a dedicated journal that publishes the emerging facets of scientific innovations in the area of Aerospace Engineering and Technology. Aerospace Engineering reflects the synergistic interplay between various branches of engineering. The path breaking technologies developed by interdisciplinary research have contributed to the tremendous progress of Aerospace sciences. Using many of these technologies developed originally for aeronautics/aerospace applications, researchers today are reporting new and novel industrial applications. This confluence of basic sciences like biology and engineering is the emerging new area of research with is both fascinating and intellectually stimulating.

Shock wave assisted applications in the area of medicine, drug delivery systems, bio-technology, manufacturing industry; space solar power systems, energy storage systems, fuels cells, use of supercomputers, development of transdisciplinary computational techniques and cryogenic applications are some of the recent innovations we see in the public domain. While these interdisciplinary applications are growing by number every day there is no journal dedicated to this important area of emerging innovative aerospace technologies. New research is being carried out by many groups in India, USA, China, Russia, Canada, Japan, Europe and Australia and is published in conference proceedings or in core group meetings and is not available easily in the open literature. Against this backdrop, the establishment of IJAI is timely and will help in the growth of many interesting innovative applications of Aerospace Technologies in the coming years.

The sub-topics that are within the scope of IJAI are: (a) use of fluid dynamic principles for the study of traffic flow, stock market, panic driven crowd motion, internet traffic problems, net work data clogging and computations finance; (b) use of hypersonic flow to understand very low temperature (10 K) chemical reactions; (c) study of dynamic fracture propagation in metallic and composite loads, and fragmentation mechanisms of automobile bumper shields using shock loading; (d) shock waves as photonic switches and as wave guides. I am confident that in the coming years many more innovative transdisciplinary applications in the area of Aerospace Science and Technology will become a part of the public domain literature. It is my earnest hope that many of these interesting topics will be published in IJAI.

I would like to thank Drs.Gabi Ben-Dor, Martin Brouillette, Kung-Ming Chung, Datta Gaitonde, Robert Georges, G.P. Guruswamy, Kostantinos Kontis, Frank K. Lu, Meng-Sing-Liou, Marco Minucci, Tsuomu Saito, Akiro Sasoh, Kojiro Suzuki, R. Thulasiram and Alexander Zheltovodov for serving on the editorial board.

## EDITOR

Dr. G. Jagadeesh

*March 2009, Bangalore, India*

