

Contents

Part I Key Note Address

Stirling Engine Technology and Its Application on Solar Power Generation	3
Chin-Hsiang Cheng and Hang-Suin Yang	
Non-Destructive Techniques and Systems for Process and Quality Control in the Automotive and Supplier Industry.	11
Eckhardt Schneider and Christian Boller	
Future Trends in the Development of Vehicle Bodies Regarding Lightweight and Cost	13
Frank Nehuis, Sebastian Kleemann, Patricia Egede, Thomas Vietor and Christoph Herrmann	
Flying with Cracks, Damage Tolerance and NDT: Potential Contributions of the Fraunhofer Institute for Nondestructive Testing IZFP to Aeronautical Safety	23
Christian Boller and Eckhardt Schneider	
A Synchronous Wound Excitation Transverse Flux Machine with Solid Rotor	25
Francois Bernot, Alix Bernot and Jean-Claude Vannier	
R&T Effort Led by MBDA in the Field of Aero-propulsion	41
Francois Falempin	
Technological Trends in the Application of Advanced Materials in Automobiles.	45
P. K. Mallick	
Recent Developments of Mechanical and Fatigue Analyses of Fiber-Reinforced Structures for Aerospace Applications.	47
Michael Magin	

Design and Development of Lighter-Than-Air Systems	63
Rajkumar S. Pant	
Computational Fluid Dynamics: A Design Tool for Aircraft Industries.	65
P. Srinivasa Murthy	
 Part II Contributed Papers	
An Approach to Improve Aviation Quality Management Using Total Quality Management Principles	69
B. Immanuel Lazur, L. Jagadeesh, B. Karthikeyan and M. Shanmugaraja	
Design and Field Trials of a Payload Recovery Device for Tethered Aerostats.	79
Nitin Sharma, Agnit Mukhopadhyay, Vishaal Sharma, Mayank Milind and Rajkumar S. Pant	
Design of an Effective Subsonic Wing Cross-Section Using Viscous-Inviscid Interactive Method.	85
L. Prabhu and J. Srinivas	
Computational Study of Various Longitudinal Fin Profiles	91
Pankaj Dhaka, Prashant Kumar and Varun Goel	
Dynamic Modeling and Simulation of Flapping Wings UAV	105
Balasubramanian Esakki, Vasantharaj Rajagopal and Rusendar Babu Srihari	
Off Line Performance Measures of Two Wheeler Engine: In Automatic Objective Method.	117
G. Mugunthan, E. Balasubramanian, R. Madhavan and Jebin Sing	
Optimization of Variable Speed Turbo Coupling in Boiler Feed Pump	129
R. Pandithurai and I. Ambrose Edward	
Cyclic Life Estimation of Turbine Rotor Blade Fitted in a Twin Spool Turbojet Engine.	135
N. Sreenivasaraja	

CFD Analysis of Swirl Enhancement in a Direct Injection Diesel Engine with Vortex Generator in Inlet Manifold	145
G. Sivakumar and S. Senthil Kumar	
Numerical Study of Air-Intake Performance of a Scramjet with Strut Blockage at Various Angle of Attacks	153
S. Sivaraj and S. Senthil Kumar	
Numerical Study of Aerodynamic Characteristics of Triangular Flapping Wing for MAV	163
S. Senthil Kumar and Pranesh Rajan	
Numerical Analysis of Suppression of Laminar Bubble at Low Reynolds Number Using Different Protrusions	171
S. Senthil Kumar, R. P. Vijay Ganesh, S. Karthikeyan and J. Karthik	
Numerical Simulation of Rayleigh-Bernard Convection in Enclosures Filled with Nanofluid	179
S. Senthil Kumar and S. Karthikeyan	
A Conceptual Design of Versatile Furtive Craft	189
P. Gowtham, C. Gnanavel, V. Manoj Kumar and R. Naveen	
Reduction of the Passage Between the Flame Tubes of the Combustor for a Millimeter Size Gas Turbine Engine in the Art of Micromachine Technology	197
Syed Alay Hashim, Nancy Manish, Deepam Mishra and Krishna Ahuja	
Influence of Temperature on Mechanical Characterization of Basalt/Epoxy Owen Fabric Composites	207
J. Alexander and B. S. M. Augustine	
Designing and Controlling the Performance of FMS: Application of Principle Component Analysis	215
M. Bragadish, N. Venkatachalapathi and A. Ramakrishna Rao	
Improved Methods for Thermal and Compression Testing of Carbon Foams	225
S. Gowthaman, J. M. Babu, P. Mathiyalagan and K. Shivakumar	
Integration of eLCAR Guidelines into Vehicle Design	235
Patricia Egede, Frank Nehuis, Christoph Herrmann and Thomas Vietor	

Design of Magnetic Wheel Rotor	243
S. Yuvaraj and M. Anantha Kumar	
The Effect of Injection Pressure on Engine Performance While the Engine is Running on Electrolytically Generated Hydrogen Oxygen Mixture	253
J. M. Babu, B. Harish Babu, M. Rajesh Kumar, S. Gowthaman, R. Mariappan and P. Mathiyalagan	
Design and Fabrication of Air Preheater for Diesel Engine.	261
Vikas Sharma, J. M. Babu, R. Naresh, S. Gowthaman and R. Mariappan	
Studies on Tropical Conditions in Hot Sunny Days in India and Their Effects on Interior Temperature Rise in Truck Cabin. . . .	269
Suraj Mani Chaurasiya, Swanand Kirpekar and Avinash R. Arankalle	
Fabrication of Bamboo Fiber Reinforced Polylactide Biocomposites	277
Wen-Bin Young, Bo-Yuan Tian and Yu-Chi Tsau	
Emission Control by Selective Exhaust Gas Recirculation Scavenging System in Two-Stroke Engine	285
V. Ramakrishnan, K. Purushothaman and S. Mohammed Ghouse	
Design of Airfoil Using Backpropagation Training with Combined Approach	295
K. Thinakaran and R. Rajasekar	
Improvement of Performance and Emission Characteristics of Diesel Engines Using TBC and Emerging Techniques: A Review	307
G. Sivakumar, R. Nanda Kumaran, M. G. Varun Kumar and S. Senthil Kumar	
Author Index	319

Innovative Design, Analysis and Development Practices
in Aerospace and Automotive Engineering

I-DAD 2014, February 22 - 24, 2014

Bajpai, R.P.; Chandrasekhar, U.; Arankalle, A.R. (Eds.)

2014, XVIII, 320 p. 200 illus., Softcover

ISBN: 978-81-322-1870-8