

# AMIT KUMAR

Advanced Design and Analysis Group  
CSIR-CMERI Durgapur  
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| <b>Date of Birth</b>           | 01/03/1987   |
| <b>Languages known</b>         | Hindi, English   |
| <b>Education</b>               | <ul style="list-style-type: none"><li>• <b>M.Tech (Engineering Mechanics)</b> – 2010 from IIT Delhi (9.2/10)</li><li>• <b>B.Tech (Mechanical)</b> – 2008 from Kamla Nehru Institute of Technology (U.P.T.U.), Sultanpur (U.P.) (71%)</li><li>• <b>Intermediate (Std XII)</b> – 2003 from UP State Board (79.4%)</li><li>• <b>High School (Std X)</b> – 2001 from UP State Board (71.2%)</li></ul>  |
| <b>Professional experience</b> |  |
| <b>Current</b>                 | <p><b>Organization: CSIR – Central Mechanical Engineering Research Institute Durgapur</b><br/><b>Post Held</b> : <i>Scientist</i><br/><b>Duration</b> : (Sept 2010 – Till date)</p> <p><b>Projects involved : 5</b></p> <ol style="list-style-type: none"><li>1. Design of Beam-Stopppers for Super-FRS in FAIR Project.<br/>Project Cost: ₹210.5 Lakh<br/>Duration: Sep. 2009-Feb. 2017<br/>Role: Project Leader<br/>Status: Ongoing</li><li>2. Design and development of force reflecting system. Network Project (12th Plan)<br/>Project Cost: ₹187.0 Lakh<br/>Duration: Sep. 2012-Mar. 2017<br/>Role: Co-PI<br/>Status: Ongoing</li><li>3. Design, Simulation and Development of High “Q” Radio Frequency (RF) Cavities and Beam Line Systems- (in collaboration with VECC, Kolkata )<br/>Project Cost: ₹87.0 Lakh<br/>Duration: Apr. 2008-Dec. 2014<br/>Role: Member<br/>Status: Completed</li><li>4. Investigation on non-conventional methods of actuation for force reflecting device<br/>Project Cost: ₹19.5 Lakh<br/>Duration: Apr. 2011-Mar. 2013<br/>Role: Member<br/>Status: Completed</li><li>5. DSP, Durgapur Skelp Mill Mechanization.<br/>Task-1: Design of a mechanized system for automated fixing of the hot skelp coil tip in the Coiler Pinch Rolls (CPR)<br/>Task-2 : Design of a mechanized system for automated fixing of the last lap of the coil with the penultimate lap in Coil Drum<br/>Project Cost: ₹20.424 Lakh<br/>Duration: Sep 2009- Apr 2012<br/>Role: Member<br/>Status: Completed</li></ol> <p><b>Organization: Academy of Scientific and Innovative Research (AcSIR) - CMERI</b><br/><b>Post Held</b> : <i>Assistant Professor</i><br/><b>Duration</b> : (Jan 2014 – Till date)<br/><b>Course</b> : <i>Computational Mechanics</i><br/><b>Subject</b> : <i>Finite Element Method</i></p> |

## CAD/CAE Software /Compilers Knowledge

- FE Solvers – LS-DYNA (Explicit and Implicit), Ansys MAPDL
- FE Pre/Post processors – HYPERMESH, LS-PREPOST, ENSIGHT
- CAD Packages – CATIA V5, AutoCAD
- Data Acquisition and control design tools: LabVIEW 2011
- Programming Languages – C, FORTRAN, MATLAB
- Office Tools – MS Excel
- Academic Writing – Latex, MS Word, GLE

No of Copyrights- **02**

#### Copyright Taken

- Pneumatic Muscle Test Set-up (Ref. no. 032CR2013 dated 30.09.2013)
- Engineering drawings of the exoskeleton of human index finger (2015)

#### Publications

- Journal: 02
- International Conference: 03

#### Research Interests/ Subjects

- Finite Element modeling and analysis
- Mechanics of composites and smart structures,
- piezothermoelasticity
- Wave propagation modeling
- Force feedback

#### ANNEXURE – List of Publications

- Mahapatra A., Biswas K., Kumar A., Chatterjee A., " Motion Control Strategies based on PD Control for a Four Degree-of-Freedom Serial Robotic Manipulator to Mimic Human Index Finger Articulations", Int. Journal of Computer Applications, Vol. 109 (13), pp. 35-42, 2015.
- Amit Kumar and S. Kapuria, "Exact 3D solution of hybrid piezoelectric laminated cylindrical shells featuring viscoelastic interfaces", Proceedings Third Asian Conference on Mechanics of Functional Materials and Structures (**ACMFMS**), New Delhi, December 2012.
- Kumar A., Kapuria S. and Gupta N. K., "*Exact 3D solution of hybrid piezoelectric laminated plates featuring viscoelastic interfaces*", Proceedings 23rd International Congress of Theoretical and Applied Mechanics (**ICTAM**), Beijing, August 2012.
- A. Kumar, S. Kapuria and N. K. Gupta, "Dynamic response of piezolaminated smart cylindrical shells with weak interfacial bonding using three-dimensional piezoelectricity," IITD Golden Jubilee Special Issue of **Proc. Indian National Science Academy (INSA)**, 2011, 77(2), 155-173.
- S. Kapuria and Amit Kumar, "Three-dimensional piezoelectricity solution for piezolaminated angle-ply cylindrical shells featuring imperfect interfacial bonding", **Proc. SPIE** 7644, 76441Z (2010); doi:10.1117/12.859302.