Curriculum Vitae of B. K. Mishra

Name & Designation : **Bhanu Kumar Mishra, Professor**

Date & Place of Birth : July 28, 1962, Darbhanga, Bihar

Nationality : Indian

Present post : Professor, Department of Mechanical and Industrial Engg,

Institution : Indian Institute of Technology, Roorkee

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Academic Qualifications

Degree	Specialization	Year	Division	Grade	Institution	Distinction/ Scholarship
B. Tech.	Mechanical Engineering	1982	First	8.67	Banaras Hindu University	Honors
M. Tech.	Mechanical Engineering	1985	-	8.74	I. I. T. Kanpur	-
Ph. D.	Mechanical Engineering	1990	-	-	Banaras Hindu University	-

Teaching / Professional / Research Employment

Employer	Post Held	Period of Employment	
		From	To
IIT Roorkee	Professor	June 25, 2007	Till Date
IIT Roorkee	Associate Professor	June 25, 2001	June 25, 2007
U.O.R, Roorkee	Assistant Professor	April 9, 1996	June 25, 2001
U.O.R, Roorkee	Lecturer	January 8, 1990	April 9, 1996

Teaching Experience

	From	To	Total
Under Graduate	January 1990	Till Date	27 years
Post Graduate			

Publications: Total = 170

	Published/Accepted
Journals	86
Conference/Symposium	84

Thesis Supervised

Theses	Awarded	Submitted	In-Progress
1. Ph.D.	14	-	2
2. M. Tech.	61	-	1

Sponsored and Consultancy Projects

Projects	Completed	In-Progress	Submitted
1. Sponsored	6	3	---
2. Consultancy	3	1	---

Foreign Visits / Assignments / Projects

- Research Associate, Texas A & M University, USA, April 1994 – April 1995.
- **Germany** (Aachen) to present a paper in ECCOMAS Thematic Conference on the XFEM, **September 28 – 30**, **2009**.
- **Singapore** (National Technological University), to present paper in Eleventh Asia-Pacific Conference on Engineering Plasticity and Its Applications (AEPA2012), **December 5-7**, **2012**.
- **Singapore,** ICMAE Conference, **December 12-14, 2015.**

Conferences Organized

- International Conference on Advances in Mechanical and Industrial Engineering, as Joint Organizing Secretary, February 1997.
- First International & 22nd All India Manufacturing Design & Research (AIMTDR) Conference, as Joint Organizing Secretary, December 2006.

Administrative Duties

- Dean, Faculty Affairs, May 2016 – Till Date
- Associate Dean, Sponsored Research and Industrial Consultancy, Oct. 2008 – Dec. 2010.
- Vice-Chairman, GATE, 2014.
- Chairman, DRC, 2014-2016.
- OC, Mechanics of Materials Lab
- OC, Department Library

Short Term Course Organized

- Organized a short term course under QIP scheme on "Design and Analysis using FEM, XFEM and Meshfree Methods" July 12 **–** 16, **2010**.
- Organized a short term course on "Simulation and Design using Extended Finite Element Method (XFEM)*"* December 13 **–** 17, **2010**.
- Organized a short term course under QIP scheme on "Modeling and Simulations using Finite Element Methods" January 7 **–** 11, **2014**.

Sponsored Research Projects

1. FEM Modeling and Process Parameter Optimization of Ultrasonic Drilling Process, AICTE, New Delhi, Rs. 5 Lakhs, 2 years **(Completed)**
2. Effect of Asymmetric Heating of Fuel Pins on Fuel Bundle Integrity, BRNS, Mumbai, Rs. 5 Lakhs, 2 years **(Completed)**
3. Pattern Tooling and Quality Optimization for Investment Castings, MHRD, New Delhi, Rs. 8 Lakhs, 3 years **(Completed)**
4. Near Net Shape Manufacturing of Metal Matrix Composite through Investment Casting Process, MHRD New Delhi, Rs. 14 Lakhs, 3 years **(Completed).**
5. Development of Elasto-Plastic Element Free Galerkin Code, *BARC, Mumbai, India*, April 2008– December 2011, 3 years, 17.24 lakhs**,** (**Completed**).
6. Thermo-mechanical Simulations of Elasto-Plastic Fracture Mechanics Problems Using XFEM and Meshless Methods, *Indo-Portugal Joint Research Project*, DST, New Delhi, January 2011– December 2013, 3 years, 4.57 lakhs**,** (**Completed**).

7. Prediction of Graphite Failure Strength using RVE Approach and XFEM, *BRNS, DAE, BARC, Mumbai, India,* August, 2014 - August, 2017, 3 years, 24.58 Lakhs (**In-progress**).
8. Failure Analysis of Engineering Components of Intricate Shape using Extended Isogeometric Analysis, *DST, New Delhi, India*, Sept, 2014 - Sept, 2017, 19.50 Lakhs (**In-progress**).
9. Simulation of High Temperature Elasto-plastic Fatigue Crack Growth using XFEM, *DMRL, DRDO, Hyderabad, India*, Nov, 2014 - Nov, 2017, 29.78 Lakhs (**In-progress**).

Consultancy Projects

1. Development of Smart/Intelligent Systems for Use in Spacecraft Antenna Reflector, Department of Space, Space Application Centre, Ahmedabad, (**Completed**)
2. Design Analysis and Weight Optimization of Cast Steel Bogies of Freight Stock on Indian Railways, *Ministry of Railways*, *RDSO, Lucknow,* January, 2011 – March, 2013 (**Completed**)
3. Development of XFEM Software for the Simulation of Fracture and Ductile Crack Tearing in Nuclear Components, *BARC, Mumbai, India*, January 2011–June 2013, 2.5 years, (**Completed**).
4. Development of Meshfree Codes for the Simulation of Damage in Metallic Materials Used in Nuclear Industries, *BARC, Mumbai, India*, April 2013–November **2015** (**Completed**).
5. The Study of Tensile and Impact Behaviour of Reduced Activation Ferritic-Martensitic Steel, *BARC, Mumbai, India*, Feb 2015–Feb **2017** (**Completed**).

PhD. Thesis Supervised

1. S. K. Srivastava, Investigation of the Effect of Inertia Forces on Elastothermodynamic Damping in Composite Materials, Co-supervisor: Prof. S. C. Jain (**2001**).
2. R. S. Jadoun, Investigation of Process Parameters Affecting the Quality of Holes Drilled in Alumina Based Ceramics by Ultrasonic Machining, Co-supervisor: Dr. Pradeep Kumar & Dr. R. C. S. Mehta (**2005**).
3. Rajeev Kumar, Shape and Vibration Control of Smart Structures, Co-supervisor: Prof. S. C. Jain (**2007**).
4. Balwinder Singh, Effect of Process Variables on Castings Produced by Ceramic Shell Investment Casting Process, Co-supervisor: Dr. Pradeep Kumar **(2007).**
5. K. K. S. Mer, Deformation Behaviour of Gradient Materials based on Al – Al_2O_3 Particulate Composite, Co-supervisor: Prof S. Ray **(2007).**
6. Abhay Sharma, Process Modelling of Twin Wire Submerged Arc Welding, Co-supervisor: Dr. Navneet Arora **(2008).**
7. Ashish Srivastava, Dynamic Characteristics of Inflated Space Structures, Co-supervisor: Prof. S. C. Jain (**2009**).
8. K. S. Aprameya, Ultrasonic NDE Modelling for Prediction of Flaw Response in Polycrystalline Metals, Co-supervisor: Dr. R. S. Anand **(2009).**
9. Saroj Kumar Panigrahi, Vibration Based Damage Detection in Structural Systems using Genetic Algorithm, Co-supervisor: Dr. S. Chakraverty **(2009).**
10. Mohit Pant, Meshfree Simulation of Fracture Mechanics Problems under Thermo-Mechanical Loading, Co-supervisor: Dr. Indra Vir Singh (**2010**).
11. Somnath Bhattacharya, Numerical Simulation of Fatigue Fracture in Functionally Graded Materials using XFEM, Co-supervisor: Dr. Indra Vir Singh (**2012**).

12. Vineet Kumar, An Investigation of Mechanical and Fracture Behavior of Ultrafine Grained 6082 Al alloy, Co-supervisor: Dr. Indra Vir Singh, **2014**.
13. Kamal Sharma, Numerical Simulation of Crack Growth Problems Using EFGM/XFEM, Co-supervisor: Dr. Indra Vir Singh, **2015**.
14. Sachin Kumar, Crack Growth Simulations in Ductile Materials using XFEM/Coupled FE-EFGM Co-supervisor: Dr. Indra Vir Singh, **2015**.
15. Roshan Patil, Failure Analysis of Heterogeneous Materials Using FE Based Phase Field Methods, (In-progress).
16. Vibhuti Bhushan Pandey, Crack Initiation and Growth using Damage Mechanics under Creep Fatigue Environment, Co-supervisor: Dr. Indra Vir Singh (In-progress).

M.E. Dissertation

1. Mohit Goel, *Fracture Analysis of Piezoelectric Material by XFEM*, June **2016** (Co-guide: Dr. I. V. Singh).
2. Aakash Bhuwal, *Elasto-plastic Crack Growth Simulation using XFEM*, June, **2015** (Co-guide: Dr. I. V. Singh).
3. Amit Kumar Sharma, *Modeling and Simulation of Nonlinear Problems Using XFEM*, June, **2015** (Co-guide: Dr. I. V. Singh).
4. Rajat Pratap, *Modelling and Simulation of Nuclear Graphite using XFEM*, June, **2015** (Co-guide: Dr. I. V. Singh).
5. Kirti Sharma**,** *Modelling and Simulation of Solid Mechanics Problems using Isogeometric Analysis***,** June, **2015** (Co-guide: Dr. I. V. Singh).
6. Shantanu Kumar Das, *Experimental Investigation and Numerical Simulation of Accumulative Roll Bonded 5080 Aluminium Alloy*, June, **2014** (Co-guide: Dr. I. V. Singh).
7. Suneel Kumar Sharma,*Nonlinear Simulation of Solid Mechanics Problems Using EFGM/XFEM*, June, **2014** (Co-guide: Dr. I. V. Singh).
8. Virender Kumar, *Numerical Simulation of Cracked Plate Using Isogeometric Analysis*, June, **2014** (Co-guide: Dr. I. V. Singh).
9. Yogesh Bisht, *Multiscale Modelling of Nuclear Graphite Using XFEM*, June, **2014** (Co-guide: Dr. I. V. Singh).
10. Subrato Sarkar, Extended Isogeometric Finite Element for the Simulation of Fracture Mechanics Problems, December **2013** (Co-guide: Dr. I. V. Singh).
11. Amit Shedbale, Numerical Analysis of Nonlinear Solid Mechanics Problems Using XFEM, June **2013** (Co-guide: Dr. I. V. Singh).
12. Azher Jameel, Numerical Simulation of Contact Problems Using XFEM/EFGM**,** June **2013** (Co-guide: Dr. I. V. Singh).
13. Sushil Kumar Maurya, Crack Growth Analysis and Weight Optimization of Railway Casnub Bogie By Using FEM, June 2013 (Co-guide: Dr. I. V. Singh).
14. Pramod Kumar, 3-D Simulation of Interpenetrating Phase Composites By FEM/EFGM, June **2013** (Co-guide: Dr. I. V. Singh).
15. Vivek Kumar Sharma, Numerical Simulation of Branched and Intersecting Cracks in the Presence of Multiple Discontinuities Using XFEM, June **2013** (Co-guide: Dr. I. V. Singh).
16. Ankit Agarwal, Failure Analysis of Interpenetrating Phase Composites by Meshfree Methods, June **2012** (Co-guide: Dr. I. V. Singh).
17. Anil Kumar Sahoo, Multi-scale modeling and simulation of 3D-Braided Composites Using FEM/XFEM, June **2012**, (Co-guide: Dr. I. V. Singh).
18. Rajesh Kumar, Numerical Simulation of Elasto-Plastic Large Deformation Problems Using FEM/EFGM, June **2012**, (Co-guide: Dr. I. V. Singh).

19. Pravin Kumar, An Isogeometric Approach for the Simulation of Solid Mechanics Problems, June **2012**, (Co-guide: Dr. I. V. Singh).
20. Mangesh Brahamnkar, Numerical simulation of 3-D fracture mechanics problems using EFGM, June **2011**, (Co-guide: Dr. I. V. Singh).
21. Roshan U. Patil, Numerical simulation of 2-D fracture mechanics problems using XFEM, IIT Roorkee, June **2011**, (Co-guide: Dr. I. V. Singh).
22. Sumit Vispute, "Numerical simulation of fatigue crack problems using element free Galerkin method", IIT Roorkee, June **2010**, (Co-guide: Dr. I. V. Singh).
23. Ch. Raghuveer, "The numerical simulation of bi-material problems using meshfree methods", IIT Roorkee, June **2009**, (Co-guide: Dr. I. V. Singh).
24. Damage detection in a smart beam through its vibratory response by H. K. Chauthiya, Co-supervisor – Dr. S. C. Jain, **2007**.
25. Active vibration control of cantilever beam by J. R. Mevada, Co-supervisor – Dr. S. C. Jain, **2007**.
26. Shape control of deployment system for space based Antenna by G. Daggaupati, Co-supervisor – Dr. S. C. Jain, **2007**.
27. Dynamic Response of Structure containing Cracks by Neeraj K. Gupta, **2006**.
28. Penetration / Perforation of a Plate by a Projectile by Ashish Pandey, **2006**.
29. Simulation of Solidification of Ceramic Shell Investment Castings using FEM by Ashwani K. Jaiswal, Co-supervisor – Dr. Pradeep Kumar, **2006**.
30. Residual stress analysis in a butt welded plate and pipe joint by Sachin Jadhav, Co-supervisor – Dr. P. K. Ghosh, **2006**.
31. Finite Element Analysis of High Strain Rate Material Deformation by Sudhanshu Sharma, Co-supervisor Mr. V. M. Chavan, BARC, **2005**.
32. Stress Analysis of a Fixed Wheel Vertical–Lift Gate by Md. Abdul Wahab, Co-supervisor –Prof. Gopal Chauhan, **2005**.
33. Static Analysis of Inflatable Torus using Piezoelectric Actuators by G. Sowjanya, **2005**.
34. Pattern Tooling and Finite Element Modeling of Investment Casting Process by P. B. S. Raju, Co-supervisor – Dr. Pradeep Kumar, **2005**.
35. Three Dimensional Stress Analysis of Radial Gate using FEM (ANSYS Software) by Manoj K. Sharma, Co-supervisor – Dr. B. N. Ashthana & Prof. Gopal Chauhan, **2004**.
36. Modeling and Control of Active Aperture Antenna by Ashwin M. Dhoke, **2004**.
37. Structural Health Monitoring using Optical Fibre by Jagdish B. Dhunde, **2004**.
38. Modeling of Mechanism of Material Removal in EDM using Finite Element Method by Amit K. Sharma, Co-supervisor – Dr. Pradeep Kumar, **2004**.
39. FEM modeling of a Smart Beam by Ashok Gupta, Co-supervisor – Dr. S. P. Nigam, **2003**.
40. Modeling of Mechanism of Material Removal in Ultrasonic Drilling using Finite Element Method by J. Bala Chandra Sekhar, Co-supervisor – Dr. Pradeep Kumar, **2003**.
41. Finite Element Modeling of Casting Fluidity by A. Sofwan F.A., Co-supervisor – Dr. S. Ray, **2003**.
42. Modeling of Material Removal in Abrasive Flow Machining by Satyendra Kumar Sharma, Co-supervisor – Dr. Pradeep Kumar, **2002**.
43. Analytical Study of Shear Actuation Mechanism in a Sandwich Beam by K. K. Bhairam **2002**.
44. Theoretical Modeling of a Plate with Induced Strain actuation by Ram Gyan Singh, **2002**.
45. Application of Finite Element Method in Analysing Generator Barrel Foundation by Uma Shankar Vidyarthi, Co-supervisor –Dr. B. N. Ashthana & Dr. Gopal Chauhan, **2001**.
46. Effect of Valley Slope on Performance of Earth and Rockfil Dams by Debasis Deb, Co-supervisor – Dr. B. N. Ashthana & Dr. R. P. Singh, **2001**.

47. Computer Aided Optimization Approach to Piston Design Based on Genetic Adaptive Search by Praveen Kumar Verma, Co-supervisor – Dr. Pradeep Kumar, **2000**.
48. Studies on Design of Aluminum Butt Weld Joint Using Finite Element Analysis by Ritesh Kumar Saini, Co-supervisor – Dr. P. K. Ghosh, **2000**.
49. Propagation of Lamb Waves in Composite Laminates by P. L. R. Suresh Babu, Co-supervisor – Dr. Narendra Singh, **1999**.
50. Design of Aluminium Weld Joints subjected to Static and Dynamic loading by B. Aruna Prasad, Co-supervisor – Dr. P. K. Ghosh, **1999**.
51. Elastothermodynamic Damping Analysis of a Griffith Crack using FEM by A.K. Gupta, 1998.
52. Propagation of Lamb Waves in Thin Orthotropic Plates by K. Balaji, Co-supervisor –Dr. Narendra Singh, **1998**.
53. Crack-Tip Opening Displacement of a Griffith Crack at a Bimaterial Interface by P. V. Srikanth, **1997**.
54. Elastothermodynamic Damping in Metal-Matrix Composites with Spherical Reinforcement by G. Padmanaban, **1997**.
55. Optimal Selection of FRP Constituents for Structural Application by Parveen Kumar Beri, Co-supervisor –Prof. D. P. Shukla, **1996**.
56. Knowledge Based System for Design of Tall Pressure Vessel by Pankaj E. Dahad, Co-supervisor –Prof. S. C. Jain, **1996**.
57. Investigation of End Effects in Composite Plates by Gaurav Gupta, **1994**.
58. Hygroscopic Effects on the Buckling Behaviour of Composite Laminated Plates by H. Thajudeen, **1993**.
59. Dynamic Response of an Adhesive Bonded Lap-Joint Connecting Two Composite Beams by Anurag Sharma, **1993**.
60. Hygroscopic Effects on the Natural Frequency of Composite Plates by Virendra Kumar, **1992**.
61. Prediction of Tire Tread Wear Life by V. L. Sulapani, Co-Supervisor – Prof. V. K. Goel, **1990**.

Journal Publications

(1) Manik Bansal, I.V Singh, **B.K. Mishra**, Kamal Sharma, I.A. Khan, A Numerical Prediction of Flexural Strength Probability for NBG-18 Nuclear Grade Graphite using Strength Pair Model, *The Journal of Strain Analysis for Engineering Design* (In-press).

(2) A.S. Shedbale, I.V. Singh, **B.K. Mishra**, Heterogeneous and Homogenized Models for Predicting the Indentation Response of Particle Reinforced Metal Matrix Composites, *International Journal of Mechanics and Materials in Design* (In-press).

(3) S. Kumar, I.V. Singh, **B.K. Mishra**, A. Singh, Kamal Sharma, I.A. Khan, A Homogenized Multigrid XFEM to Predict the Crack Growth Behavior of Ductile Material in the Presence of Microstructural Defects, *Engineering Fracture Mechanics* (In-press).

(4) S.K. Singh, I. V. Singh, **B.K. Mishra**, G. Bhardwaj, T.Q. Bui, A Simple, Efficient and Accurate Bézier Extraction based T-spline XIGA for Crack Simulations, *Theoretical and Applied Fracture Mechanics,* Vol. 88, pp. 74-96, **2017**.

(5) Manik Bansal, I.V Singh, **B.K. Mishra**, Kamal Sharma, I.A. Khan, A Stochastic XFEM Model for the Tensile Strength Prediction of Heterogeneous Graphite based on Microstructural Observations, *Journal of Nuclear Materials*, Vol. 487, pp. 143-157, **2017**.

(6) Roshan Patil, **B.K. Mishra**, I.V Singh, A New Multiscale XFEM for the Elastic Properties Evaluation of Heterogeneous Materials, *International Journal of Mechanical Sciences*, Vol. 122, pp. 277-287, **2017**.

(7) A.S. Shedbale, I.V. Singh, **B.K. Mishra,** Kamal Sharma, Ductile Failure Modeling and Simulations Using Coupled FE-EFG Approach, *International Journal of Fracture*, Vol. 203, pp. 183-209, **2017**.

(8) G. Bhardwaj, S.K. Singh, I.V. Singh, **B.K. Mishra**, T. Rabczuk, Fatigue Crack Growth Analysis of an Interfacial Crack in Heterogeneous Materials using Homogenized XIGA, *Theoretical and Applied Fracture Mechanics*, Vol. 85, Part B, pp. 294-319, **2016**.

(9) A.S. Shedbale, I.V. Singh, **B.K. Mishra**, A Coupled FE–EFG Approach for Modeling Crack Growth in Ductile Materials, *Fatigue & Fracture of Engineering Materials and Structures*, Vol. 39(10), pp. 1204-1225, **2016**.

(10) Manish Kumar, I.V. Singh, **B. K. Mishra**, S. Ahmad, A. Venugopal Rao, Vikas Kumar, A Modified Theta Projection Model for Creep Behavior of Metals and Alloys, *Journal of Materials Engineering and Performance*, Vol. 25(9), pp. 3585-3592, **2016**.

(11) I.V. Singh, A.S. Shedbale, **B.K. Mishra**, Material Property Evaluation of Particle Reinforced Composites Using Finite Element Approach, *Journal of Composite Materials*, Vol. 50(20), pp. 2757–2771, **2016**.

(12) A.S. Shedbale, I.V. Singh, **B.K. Mishra**, K. Sharma, Evaluation of Mechanical Properties using Spherical Ball Indentation and Coupled FE-EFG Approach, *Mechanics of Advanced Materials and Structures*, Vol. 23 (7), pp. 832–843, **2016**.

(13) G. Bhardwaj, I.V. Singh, **B.K. Mishra**, Virender Kumar, Numerical Simulations of Cracked Plate using XIGA under Different Loads and Boundary Conditions, *Mechanics of Advanced Materials and Structures*, Vol. 23, pp. 704–714, **2016**.

(14) Sachin Kumar, I.V. Singh, **B.K. Mishra**, Fatigue Crack Growth Simulations in Ductile Materials by Coupled FEEFG Approach, *Applied Mechanics and Materials*, Vol. 829, pp. 73–77, **2016**.

(15) A.S. Shedbale, A.K. Sharma, I.V. Singh, **B.K. Mishra**, Modeling and Simulation of Metal Forming Processes by XFEM, *Applied Mechanics and Materials*, Vol. 829, pp.41-45, **2016.**

(16) S. Kumar, I.V. Singh, **B.K. Mishra**, A. Singh, New Enrichments in XFEM to Model Dynamic Crack Response of 2-D Elastic Solids, *International Journal of Impact Engineering*, Vol. 87, pp. 198–211. **2015**.

(17) Sachin Kumar, A.S. Shedbale, I.V. Singh, **B.K. Mishra**, Elasto-Plastic Fatigue Crack Growth Analysis of Plane Problems in the Presence of Flaws Using XFEM, *Frontiers of Structural and Civil Engineering*, Vol. 9(4), pp. 420–440, **2015**.

(18) G. Bhardwaj, I.V. Singh, **B.K. Mishra**, Fatigue Crack Growth in Functionally Graded Material using Homogenized XIGA, *Composite Structures*, Vol. 134, pp. 269–284, **2015**.

(19) G. Bhardwaj, I.V. Singh, **B.K. Mishra**, T.Q. Bui, Numerical Simulation of Functionally Graded Cracked Plates using NURBS based XIGA under Different Load and Boundary Conditions, *Composite Structures*, Vol. 126, pp. 347–359, **2015**.

(20) S. Kumar, I.V. Singh, **B.K. Mishra**, A Homogenized XFEM Approach to Simulate Fatigue Crack Growth Problems, *Computers & Structures*, Vol. 150, pp. 1–22, **2015**.

(21) G. Bhardwaj, I.V. Singh, **B.K. Mishra**, Stochastic Fatigue Crack Growth Simulation of Interfacial Crack in Bi-layered FGMs using XIGA, *Computer Methods in Applied Mechanics and Engineering*, Vol. 284, pp. 186–229, **2015**.

(22) S. Kumar, I.V. Singh, **B.K. Mishra**, Timon Rabczuk, Modeling and Simulation of Kinked Cracks by Virtual Node XFEM, *Computer Methods in Applied Mechanics and Engineering*, Vol. 283, pp. 1425–1466, **2015**.

(23) I.V. Singh, G. Bhardwaj, **B.K. Mishra**, A New Criterion for Modeling Multiple Discontinuities Passing through an Element using XIGA, *Journal of Mechanical Science and Technology*, Vol. 29(3), pp. 1141–1143, **2015**.

(24) S. Kumar, I.V. Singh, **B.K. Mishra**, A Multigrid Coupled (FE-EFG) Approach to Simulate Fatigue Crack Growth in Heterogeneous Materials, *Theoretical and Applied Fracture Mechanics*, Vol. 72, pp. 121–135, **2014**.

(25) Kamal Sharma, I.V. Singh, **B.K. Mishra**, S.K. Maurya, Numerical Simulation of Semi-Elliptical Axial Crack in Pipe Bend using XFEM, *Journal of Solid Mechanics*, Vol. 6(2), pp. 208–228, **2014**.

(26) S. Kumar, I.V. Singh, **B.K. Mishra**, A Coupled Finite Element and Element-Free Galerkin Approach for the Simulation of Stable Crack Growth in Ductile Materials, *Theoretical and Applied Fracture Mechanics*, Vol. 70, pp. 49–58, **2014.**

(27) S. Kumar, I.V. Singh, **B.K. Mishra**, XFEM Simulation of Stable Crack Growth using *J-R* and CTOA Criteria, *International Journal of Mechanics and Materials in Design*, Vol. 10, pp. 165–177, **2014**.

(28) I.V. Singh, **B.K. Mishra**, M. Brahmankar, V. Bhasin, K. Sharma, I.A. Khan, Numerical Simulations of 3-D Cracks Using Coupled EFGM and FEM, *International Journal for Computational Methods in Engineering Science & Mechanics***,** Vol. 15, pp. 227–231, **2014**.

(29) Vineet Kumar, I.V. Singh, **B.K. Mishra**, R. Jayaganthan, Improved Fracture Toughness of Cryorolled and Room Temperature Rolled 6082 Al Alloys, *Acta Metallurgica Sinica*, Vol. 27, pp. 359–367, **2014.**

(30) A.K. Sahoo, I.V. Singh, **B.K. Mishra**, XFEM for the Evaluation of Elastic Properties of CNT-Based 3-D Full Five Directional Braided Composites, *Advanced Composite Materials,* Vol. 23, pp. 351–373, **2014**.

(31) S. Bhattacharya**,** I.V. Singh, **B.K. Mishra**, Fatigue Life Simulation of Functionally Graded Materials under Cyclic Thermal Load Using XFEM, *International Journal of Mechanical Sciences*, Vol. 82, pp. 41-59, **2014**.

(32) Sachin Kumar, I.V. Singh and **B.K. Mishra**, Numerical Investigation of Stable Crack Growth in Ductile Materials Using XFEM, *Procedia Engineering*, Vol. 64, pp. 652-660, **2013**.

(33) A.S. Shedbale, I.V. Singh and **B.K. Mishra**, Nonlinear Simulation of an Embedded Crack in the Presence of Holes and Inclusions by XFEM, *Procedia Engineering*, Vol. 64, pp. 642-651, **2013**.

(34) Kamal Sharma, I.V. Singh, **B.K. Mishra** and A.S. Shedbale, The Effect of Inhomogeneities on Edge Crack: A Numerical Study using XFEM, *International Journal for Computational Methods in Engineering Science & Mechanics*, Vol. 14(6), pp. 505-523, **2013.**

(35) G. Bhardwaj, I.V. Singh and **B.K. Mishra**, Numerical Simulation of Plane Crack Problems Using Extended Isogeometric Analysis, *Procedia Engineering*, Vol. 64, pp. 661-670, **2013**.

(36) S. Bhattacharya**,** I.V. Singh and **B.K. Mishra**, Mixed-Mode Fatigue Crack Growth Analysis of Functionally Graded materials by XFEM, *International Journal of Fracture*, Vol. 183, pp. 81-97, **2013**.

(37) Ankit Agarwal, I.V. Singh and **B.K. Mishra**, Evaluation of Elastic Properties of Interpenetrating Phase Composites by Meshfree Method, *Journal of Composite Material*, Vol. 47(11), pp. 1407-1423, **2013**.

(38) S. Bhattacharya**,** I.V. Singh, **B.K. Mishra**, T.Q. Bui**,** Fatigue Crack Growth Simulations of Interfacial Cracks in Bi-layered FGMs using XFEM, *Computational Mechanics*, Vol. 52(4), pp.799-814, **2013**.

(39) S. Bhattacharya, I.V. Singh, **B.K. Mishra** and R.U. Patil, Fatigue Life Estimation of Functionally Graded Materials using XFEM*, Engineering With Computers*, Vol. 29(4), pp. 427-448, **2013.**

(40) Ankit Agarwal, I.V. Singh and **B.K. Mishra**, Numerical Prediction of Elasto-Plastic Behaviour of Interpenetrating Phase Composites By EFGM, *Composites: Part B,* Vol. 51, pp. 327-336, **2013**.

(41) Mohit Pant, I.V. Singh and **B.K. Mishra**, A Novel Enrichment Criterion for Modeling Kinked Cracks using Element Free Galerkin Method, *International Journal of Mechanical Sciences*, Vol. 68, pp. 140-149, **2013**.

(42) R. Kumar, I.V. Singh, **B.K. Mishra**, and A. Singh, Numerical Simulation of Large Deformation Problems by Element Free Galerkin Method, *Key Engineering Materials*, Vols. 535-536, pp. 85-88, **2013**.

(43) R. Kumar, I.V. Singh, **B.K. Mishra**, R. Cardoso and J.W. Yoon, A Comparison of EFGM and FEM for Nonlinear Solid Mechanics Problems, *Key Engineering Materials*, Vols. 535-536, pp. 434-437, **2013**.

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