

Prof. Avinash Parashar

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Bio Sketch

Prof. Parashar is a Professor in the Department of Mechanical and Industrial Engineering at IIT Roorkee. He earned his doctoral degree from the University of Alberta and subsequently completed his post-doctoral research at Johns Hopkins University, USA. Prior to joining IIT Roorkee, he worked as a attached scientist at Canadian Nuclear Laboratories, Canada, and gained industry experience as an Engineer at NTPC and Honda Cars India Ltd. His research interests include computational and experimental mechanics of composites, nanocomposites, and high entropy alloys for space and defense applications.

Education

- **Ph.D.**, Mechanical Engineering, [University of Alberta, Canada](#) 2009- 2012
 - (GPA- **4.0/4.0**)
- **Masters**, Mechanical Engineering, [Concordia University, Canada](#) 2006-2008
 - (GPA-**3.93**)
- **B.E.**, Mechanical Engineering, [N.I.T., Bhopal, India](#) 1998 - 2002
 - (**79.5 %**- Distinction with honors)

Professional Experience

- **Professor** (Full) Aug, 2024- cont.
Department of Mechanical & Industrial Engineering,
Indian Institute of Technology Roorkee, [India](#)
- **Attached Scientist** May, 2013-May, 2014
Computational Physics Labs
Atomic Energy of Canada Limited,
Chalk River Laboratories, [Canada](#)
- **Postdoctoral Researcher** Dec, 2012-Mar,2013
Department of Civil Engineering,
John Hopkins University, [USA](#)

- **Executive Engineer** Sept 2004- Sept 2006
National Thermal Power Corporation Ltd.
India
- **Engineer** Oct 2003-Jul 2004
Honda Siel Cars India Ltd
India
- **Graduate Engineer Trainee** July 2002-Oct, 2003
LML Ltd.
India

Sponsored Research Projects

Project Area	Sponsoring Agency	Amount (Lacs)	Status
Tailoring polymer properties	MHRD-IIT Roorkee	10.00	Completed
Atomistic study of nanocomposites	Nanomission, DST	24.09	Completed
Irradiation effect on Zr-Nb alloys	BRNS, DAE	22.79	Completed
2D nanosheets for water desalination	CSIR	15.88	Completed
PEGDA Hydrogels	SERB (CRG)	20.57	Completed
Polymer nanocomposites	VSSC, ISRO	20.79	Completed
High entropy alloys	SERB (MATRICS)	6.60	Completed

Awards and Honours

Award	Amount
Best performing project, VSSC, ISRO	-
Best Paper Award, International conference on design and manufacturing technologies	-
3rd Prize, International Conference on Processing and Characterization	-
Institute Research Fellow (IIT Roorkee)	Rs.9,00,000/-
Excellent grades for executing research project, DST	-
Shortlisted for Policy Maker Position, Canada (NSERC Fellow)	-
Atomic Energy of Canada Limited postdoctoral fellowship	\$57200/-
NSERC (Visiting postdoctoral fellowship)	\$47234.
NSERC postgraduate scholarship	\$63000/-
Alberta innovates graduate scholarship in nanotechnology	\$1,23000/-
Ontario graduate scholarship	\$45000/-
Presidents doctoral prize of distinction	\$20,200/-
ASME OMAE Calgary graduate scholarship	\$39,000/-
Tuition fees waiver	\$1500/-
University of Toronto fellowship	\$9,000/-
Best Newcome Engineer, Honda Siel Cars India Ltd.	
President Scout	-

Doctoral Candidates (Supervised)

<i>Candidate</i>	<i>Status</i>	<i>Outreach</i>
Rajasekaran G	Awarded (2014-2017)	○ Assistant Professor, NIT Trichy
Rajesh Kumar	Awarded (2015-2018)	○ DST Travel Grant ○ University of Connecticut, USA (Postdoctoral fellow) ○ Assistant Professor, NIT Hamirpur ○ Assistant Professor, NIT Kurukshetra
Divya Singh	Awarded (2016-2019)	○ Shortlisted for excellence in doctoral thesis award (2020) ○ John Hopkins University, USA (Postdoctoral fellow) ○ University of California, Irvine USA (Postdoctoral fellow) ○ Assistant Professor, Utah Tech University, USA
Akarsh Verma	Awarded (2016-2020)	○ Fulbright Indo –US fellowship ○ Awarded best doctoral thesis award, IIT Roorkee (2020) ○ JSPS postdoctoral fellow (University of Osaka)
Bharat B Sharma	Awarded (2017-2021)	○ IISc Bengaluru (Postdoctoral fellow) ○ Shortlisted for excellence in doctoral thesis award (2021) ○ Assistant Professor, GATI SHAKTI University
Ankur Chaurasia	Awarded (2018-2022)	○ Assistant Professor, PDEU, Gandhinagar, Gujrat ○ Assistant Professor, NIT Patna
Sandeep Kr Singh	Awarded (2019-2022)	○ University of Tokyo, Japan (Postdoctoral fellow)
Saurabh S Sharma	Awarded (2019-2023)	○ Commander, Indian Navy
Raju Kumar	Awarded (2021-2025)	○ Linkoping University, Sweden (Postdoctoral fellow)
Kaushlendra Kumar	Awarded (2022-2026)	○ Teaching in Gorakhpur Govt. Engg. College

Masters Candidates (Supervised)

<i>Candidate</i>	<i>Status</i>	<i>Placement</i>
Sanjay S R	Ongoing	
Anand Kumar	Awarded	L&T
Vikas Tiwari	Awarded	NTPC Ltd.
Sanchit Tamrakar	Awarded	Bajaj Auto
Kaung Satt Lin	Awarded	Myanmar Air Force
Abhinav Kumar Sharma	Awarded	EATON, India
Prince Verma	Awarded	EATON, India
Saurabh S Sharma	Awarded	Commander, Indian Navy
Prashant Sharma	Awarded	KBR, INC
Pankaj Sharma	Awarded	Siemens, India
Mukesh Kumar	Awarded	Heavy Engineering Corporation
Rohit Kumar	Awarded	DAAD Fellow, EATON, India
Anil Kumar Gautam	Awarded	A.E. Irrigation, UP Govt.

Administrative Responsibilities at IIT Roorkee

1. Chairman Hindi Cell (September 2024 – Till date)
2. Coordinator course allocation policy MIED
3. Timetable committee
4. Deputy superintendent examination
5. Coordinator Lab based project (MIN-399)
6. Coordinator Training and Placement Seminar (MIN-499)
7. Coordinator BTP (Design)
8. Faculty Coordinator Industrial Tour
9. Faculty Coordinator MIESS
10. Founding member SPARK
11. Member DAPC, DAC, DRC and space committees

Books (Author)

Dheerendra Kumar Dwivedi, **Avinash Parashar**, Arup Kumar Das “*Introduction to Mechanical Engineering*” 2025, All India Council for Technical Education, Pages: 1-458.

Journal Articles (First and corresponding author)

1. Ashutosh Mittal, **Avinash Parashar (2026)** Deformation Governing Mechanism of PEEK as a Function of Polymerization and Crystallinity: Reacting Force Field-based Atomistic Study. **Mechanics of materials**, 216, 105629.
2. Kaushlendra Kumar, S P Harsha, **Avinash Parashar (2025)** Fracture characteristics of h-BN reinforced HDPE nanocomposite: Experimental and Atomistic Modelling. **Physica scripta**, 100, 105950.
3. Sanjay Patil, **Avinash Parashar (2025)** Effect of intra- and intergranular hydride precipitation on phonon thermal transport behavior of zirconium: A molecular dynamics study. **Journal of nuclear materials**, 617,156162.
4. Sanjay Patil, **Avinash Parashar (2025)** Atomistic study on the effects of hydride precipitation on shock behavior of single crystal zirconium. **Mechanics of materials**, 210, 105456.
5. Ashutosh Mittal, **Avinash Parashar (2025)** Reactive Force Field-Based Atomistic Studies Exploring the Effects of h-BN Nanosheets and Water on the Tensile Strength of sulfonated PEEK for Fuel-Cell Applications. **ACS applied nano materials**, 8,13838–13850.

6. Raju Kumar, Jenish Patel, **Avinash Parashar**, Ankur Chaurasia (2025) Tribo-Mechanical and Antibacterial Performance of 3D-Printed hBN/PEGDA Nanocomposites for Load-Bearing Tissue Engineering Applications. **ACS applied bio materials**, 8,6439-6454.
7. Lalit Kumar, S.P.Harsha, **Avinash Parashar** (2025) Crack tip behaviour in a non-equi-atomic configurations of multiple elemental alloys: A MD based study. **Physica scripta**, 100, 045938
8. Kaushlendra Kumar, Ankur Chaurasia, S P Harsha, **Avinash Parashar** (2025) Functionalised h-BN nanosheets with bonded interface for enhanced compressive strength of HDPE nanocomposite. **Journal of materials science**, 60, 6121-6137.
9. Lalit Kumar, Raju Kumar, Sandeep Kumar Singh, Saurabh S Sharma, S.P.Harsha, **Avinash Parashar** (2025) A review of atomistic simulations to study the multiple-elemental alloys. **Materials today communications**, 43, 111823.
10. Lalit Kumar, S.P.Harsha, Anand Gupta, **Avinash Parashar** (2025) Effect of lattice distortion on the mechanical behaviour of non-equi-atomic configurations of multiple elemental alloys. **Physica B: Condensed Mater**, 696, 416667
11. Raju Kumar, Abhishek Tewari, Avinash Parashar (2024) An atomistic and experimental approach to study the effect of water and nanofillers on the compressive strength of PEGDA hydrogels for cartilage replacement. **Mechanics of materials**, 199,105161.
12. Ashutosh Mittal, **Avinash Parashar**, (2024) Effect of degree of polymerization, crystallinity and sulfonation on the thermal behaviour of PEEK: a molecular dynamics based study. **PCCP** , 26, 23335.
13. Sanjay Patil, **Avinash Parashar** (2024) Effects of intergranular hydride precipitation on the mechanical behavior of bi-crystalline zirconium: a Molecular dynamics-based study. **Mechanics of materials**, 198, 105124.
14. Sanjay Patil, **Avinash Parashar** (2024) Mechanical behavior of zirconium hydride phases: insights from molecular dynamics based simulations. **Journal of physics D: applied physics**, 57, 505302.
15. Saurabh S Sharma, **Avinash Parashar** (2024) A review of atomistic simulations to study the effect of helium bubble formation in metal crystals. **Physica Scripta**, 99,102001.
16. Raju Kumar, Abhishek Tewari, **Avinash Parashar** (2024) Experimental and atomistic insight on the mechanical behaviour of h-BN reinforced PEGDA hydrogel for biomedical applications. **International journal of mechanical sciences**, 277, 109397
17. Raju Kumar, Abhishek Tewari, **Avinash Parashar** (2024) Thermal transport phenomena in PEGDA based nanocomposites hydrogel using atomistic and experimental technique. **The journal of physical chemistry B**,128, 5254–5267

18. Kaushlendra Kumar, S.P. Harsha, **Avinash Parashar (2024)** Molecular dynamics-based simulations to study the diffusion of gases in medium and high-density polyethylene. **ACS Applied Nano Materials**, 7, 1978-1985.
19. Ankur Chaurasia, Kaushlendra Kumar, S.P. Harsha, **Avinash Parashar (2023)** Covalently functionalized interface in h-BN/PE nanocomposites for enhanced mechanical and thermal properties. **PCCP**, 25, 31396-31409
20. **Saurabh S Sharma, Avinash Parashar (2024)** Effect of helium on the thermal transport properties in single and bi crystals of Ni: a MD based study. **Journal of physics D: applied physics**, 57,055304.
21. Sandeep Kumar Singh, **Avinash Parashar (2023)** Effect of Frenkel pairs on the tensile and shock compression strength of multi-elemental alloys. **Physica Scripta**, 98,095939
22. Raju Kumar, **Avinash Parashar (2023)** Effect of degree of polymerization and water content on the thermal transport phenomena in PEGDA hydrogel: A Molecular Dynamics Based Study. **PCCP**, 25, 18960-18972
23. Saurabh S Sharma, **Avinash Parashar (2023)** Effect of Symmetrical and asymmetrical tilt grain boundaries with <001> as the tilt axis on the shock response of bi-crystalline Ni. **Materials chemistry and physics**, 308, 128298
24. Raju Kumar, **Avinash Parashar (2023)** Atomistic simulations of nanocomposite-based hydrogels: a review. **Wires Computational molecular science**, 2023;13:e1655 (**Top cited article**)
25. Sandeep Kumar Singh, **Avinash Parashar (2022)** Effect of lattice distortion and grain size on the crack tip behaviour in Co-Cr-Cu-Fe-Ni under mode-I and mode-II loading. **Engineering fracture mechanics**, 274C, 108809.
26. Sandeep Kumar Singh, **Avinash Parashar (2022)** Shock resistance capability of multi-principal elemental alloys as a function of lattice distortion and grain size. **Journal of applied physics**, 132, 095903.
27. Saurabh S Sharma, **Avinash Parashar (2022)** Shock resistance capabilities of nickel crystal containing helium nanobubbles. **Journal of applied physics**, 132, 065902.
28. Ankur Chaurasia, Rahul S Mulik, **Avinash Parashar (2022)** Polymer based nanocomposites for impact loading: a review. **Mechanics of advanced materials and structures**, 29, 2581- 2606.
29. Ankur Chaurasia, **Avinash Parashar (2022)** Deformation dynamics of h-BN reinforced polyethylene nanocomposites under shock/impact loading. **International journal of mechanical sciences**, 225, 107379.
30. Ankur Chaurasia, **Avinash Parashar (2022)** Anisotropic shock response in mono and bi-crystalline boron nitride nanosheets. **ACS Applied nano materials**, 5, 2787-2800.
31. Ankur Chaurasia, **Avinash Parashar (2022)** An atomistic approach to study the dynamic and structural response in 2D reinforced (mono and bi-crystalline)

- polyethylene nanocomposites under ultra-short shock pulse loading. **Mechanics of materials**, 169,104305.
32. Sandeep Kumar Singh, **Avinash Parashar (2022)** Effect of lattice distortion on the shock compression behaviour of Co-Cr-Cu-Fe-Ni high entropy alloy using molecular dynamics based simulations. **Computational materials science**, 209,111402.
 33. Abhinav Kumar Sharma, Saurabh S Sharma, Sandeep Kumar Singh, **Avinash Parashar (2021)** Atomistic simulations to study the effect of helium nanobubble on the shear deformation of nickel crystal. **Journal of nuclear materials**, 557, 153245.
 34. Saurabh S Sharma, **Avinash Parashar (2021)** Atomistic simulations to study the effect of helium bubble on the crack tip behaviour in single crystal Ni. **Journal of physics D: applied physics**, 54,365305.
 35. Sandeep Kumar Singh, **Avinash Parashar (2021)** Defect dynamics and uniaxial tensile deformation of equi and non-equi-atomic configuration of multi elemental alloys. **Materials chemistry and physics**, 266,124549.
 36. Ankur Chaurasia, **Avinash Parashar (2021)** Effect of grain boundary configuration on the interfacial thermal transport properties in BNNS/PE nanocomposite. **International journal of heat and mass transfer**, 170,121039.
 37. Sandeep Kumar Singh, **Avinash Parashar (2021)** Atomistic simulations to study crack tip behaviour in multi-elemental alloys. **Engineering fracture mechanics**,243,107536.
 38. Bharat Bhushan Sharma, **Avinash Parashar (2021)** Inter-granular fracture behavior in bicrystalline boron nitride nanosheets using atomistic and continuum mechanics based approaches. **Journal of materials science**, 56, 6235-6250.
 39. Bharat Bhushan Sharma, **Avinash Parashar (2021)** Fracture behaviour of pristine and defective form of water submerged h-BN nanosheets. **Journal of physics D: applied physics**, 54, 035306.
 40. Bharat Bhushan Sharma, **Avinash Parashar (2020)** Mechanical strength of nanoporous bicrystalline h-BN nanomembrane under water submerged state. **PCCP**, 22, 20453-20465. **(Listed as HOT article 2020)**
 41. Divya Singh, Prashant Sharma, **Avinash Parashar (2020)** Molecular dynamics based simulations to study the effect of tilt grain boundaries on defect formation and migration energies in niobium. **Materials chemistry and physics**, 255, 123628.
 42. Prince Verma, **Avinash Parashar (2020)** Sequential multi scale model to study the crack tip behaviour in bi-crystalline graphene. **Journal of applied physics**, 127, 225103.
 43. Ankur Chaurasia, **Avinash Parashar, Rahul S Mulik, (2020)** Effect of hexagonal boron nitride nanoplatelet on crystal nucleation, mechanical behaviour and thermal stability of high density polyethylene based nanocomposites. **Macromolecular materials and engineering**, 305, 2000248.

44. Prince Verma, Bharat Bhushan Sharma, Ankur Chaurasia, **Avinash Parashar (2020)** Intergranular fracture toughness of bi-crystalline graphene nanosheets. **Diamond and related materials**, 102,107667.
45. Bharat Bhushan Sharma, **Avinash Parashar, (2020)** A review on thermo-mechanical properties of bi-crystalline and polycrystalline 2D nanomaterials. **Critical reviews in solid state and materials sciences**, 45,134-170.
46. Bharat Bhushan Sharma, **Avinash Parashar (2020)** Mechanical and Fracture Behaviour of hydroxyl functionalised h-BN nanosheets. **Journal of Materials science**, 55,3228-3242.
47. Ankur Chaurasia, Akarsh Verma, **Avinash Parashar, Rahul S Mulik, (2019)** An Experimental and Computational Study to Analyse the Effect of h-BN Nanosheets on Mechanical Behaviour of h-BN/Polyethylene Nanocomposite. **The Journal of physical chemistry C**, 123, 20059-20070.
48. Divya Singh, **Avinash Parashar, Rajeev Kapoor, Apu Sarkar, A. Kedharnath (2019)**, Molecular dynamics-based simulations to study crack tip interaction with symmetrical and asymmetrical tilt grain boundaries in zirconium. **Journal of nuclear materials**, 526,151739.
49. Bharat Bhushan Sharma, **Avinash Parashar (2019)** Atomistic simulations to study the effect of water molecules on the mechanical behavior of functionalized and non-functionalized h-BN. **Computational materials science**, 169, 109092.
50. Bharat Bhushan Sharma, **Avinash Parashar (2019)** Atomistic simulations to study the effect of grain boundaries and hydrogen functionalisation on the fracture toughness of bi-crystalline h-BN nanosheets. **PCCP**, 21, 13116-13125.
51. Divya Singh, **Avinash Parashar (2019)** Effect of Nb precipitate on defect formation and migration energies in bi-crystalline Zr. **Materials chemistry and physics**, 235, 121729.
52. Saurabh S Sharma, Bharat Bhushan Sharma, **Avinash Parashar (2019)** Defect formation dynamics in dry and water submerged graphene nanosheets. **Materials research express**, 6, 075063.
53. Saurabh S Sharma, Bharat Bhushan Sharma, **Avinash Parashar (2019)** Mechanical and fracture behaviour of water submerged graphene. **Journal of applied physics**, 125, 215107.
54. Divya Singh, **Avinash Parashar (2019)** Atomistic simulations to study the effect of Nb precipitate on fracture properties of bi-crystalline Zr. **Journal of physics D: applied physics**, 52,355304.
55. Akarsh Verma, Rajesh Kumar, **Avinash Parashar (2019)** Enhanced thermal transport across bi-crystalline graphene-polymer interface: An atomistic approach. **PCCP**, 21, 6229-6237.

56. Akarsh Verma, **Avinash Parashar**, Muthukumaran Packirisamy (2019), Effect of grain boundaries on the interfacial behaviour of graphene-polyethylene nanocomposite. **Applied surface science**, 470, 1085-1092.
57. Divya Singh, **Avinash Parashar**, Rajeev Kapoor, Apu Sarkar, A. Kedharnath (2019), Effect of symmetrical and asymmetrical tilt grain boundaries on the tensile deformation of zirconium bi-crystals: a MD based study. **Journal of Materials science**, 54, 3082-3095.
58. Vibhor Singla, Akarsh Verma, **Avinash Parashar** (2019), A molecular dynamics based study to estimate the point defects formation energies in graphene containing STW defects. **Materials research express**, 6,015606 (**SPARK INTRENSHIP WORK**).
59. Divya Singh, Pankaj Sharma, Sahil Jindal, Prince Kumar, Piyush Kumar, **Avinash Parashar** (2019): Atomistic simulations to study crack tip behaviour in single crystal of bcc Niobium and hcp Zirconium. **Current applied physics** 19,37-43.
60. Akarsh Verma, **Avinash Parashar** (2018) Structural and Chemical Insights into Thermal Transport for Strained Functionalised Graphene: A Molecular Dynamics Study. **Materials research express**, 5,116505.
61. Akarsh Verma, **Avinash Parashar** (2018) Tailoring the failure morphology of bicrystalline graphene oxide. **Journal of Applied Physics**, 124, 015102.
62. Akarsh Verma, **Avinash Parashar** (2018) Reactive force field based atomistic simulations to study fracture toughness of bicrystalline graphene functionalised with oxide groups. **Diamond and Related Materials**, 88, 193-203.
63. Divya Singh, **Avinash Parashar** (2018) Effect of symmetrical and asymmetrical tilt grain boundaries on radiation induced defects in zirconium. **Journal of Physics D: Applied physics**, 51,265301.
64. Rajesh Kumar, **Avinash Parashar** (2018) Effect of geometrical defects and functionalization on the interfacial strength of h-BN / polyethylene based nanocomposite. **Polymer**, 146, 82-90.
65. Akarsh Verma, **Avinash Parashar** (2018) Molecular dynamics based simulations to study the fracture strength of monolayer graphene oxide. **Nanotechnology** 29,115706.
66. Divya Singh, **Avinash Parashar** (2018) Effect of symmetric and asymmetric tilt grain boundaries on the tensile behaviour of bcc-Niobium. **Computational materials science**, 143, 126-132.
67. Akarsh Verma, **Avinash Parashar** (2018) Molecular dynamics based simulations to study failure morphology of hydroxyl and epoxide functionalised graphene. **Computational materials science**. 143, 15-26.
68. Akarsh Verma, **Avinash Parashar**, Muthukumaran Packirisamy (2018) Atomistic modeling of graphene/h-BN polymer nanocomposites: A review. **Wires Computational molecular science**, 3,1-50.

69. Rajesh Kumar, **Avinash Parashar**, Pierre Martiny (2018) Displacement thresholds and knock-on cross sections for hydrogenated h-BN monolayers. **Computational materials science**, 142,82-88.
70. Rajesh Kumar, **Avinash Parashar**, (2017) Dislocation assisted crack healing in h-BN nanosheets. **PCCP**,19, 21739-21747.
71. Akarsh Verma, **Avinash Parashar**,(2017) Effect of STW defects on mechanical properties and fracture toughness of pristine and hydrogenated graphene. **PCCP**, 19, 16023 – 6037.
72. Rajesh Kumar, **Avinash Parashar**, (2017)Fracture toughness enhancement of h-BN monolayers via hydrogen-passivation of crack surface. **Nanotechnology** ,28,165702.
73. Rajasekaran G., **Avinash Parashar**, (2017) Enhancement of Fracture Toughness of Graphene via Crack Bridging with Stone-Thrower-Wales Defects. **Diamond and related materials**. 74,90-99.
74. **Avinash Parashar**, Divya Singh, (2017) Molecular dynamics based study of an irradiated single crystal of niobium. **Computational materials science**.131,48-54.
75. Rajasekaran G., **Avinash Parashar**, (2016) Anisotropic compressive response of Stone-Thrower-Wales defects in graphene: A molecular dynamics study. **Materials research express**, 9 095015.
76. Rajesh Kumar, Pierre Pertiny, **Avinash Parashar**, (2016) Effects of Different Hydrogenation Regimes on Mechanical Properties of h-BN: A Reactive Force Field Study: A Reactive Force Field Study. **The Journal of physical chemistry C**. 120, 21932–21938.
77. Muse Degefe, **Avinash Parashar**, (2016) Effect of non-bonded interactions on failure morphology of defective graphene. **Materials research express**, 4, 045009.
78. Rajasekaran G., **Avinash Parashar**, (2016) Molecular Dynamics Study on Mechanical Response and Failure Behaviour of Graphene: Performance Enhancement via 5-7-7-5 Defects. **RSC Advances**, 6, 26361-26373.
79. Rajasekaran G., **Avinash Parashar**, (2016) Molecular dynamics based simulations to study the effect of modified cut-off function for Tersoff potential on estimating mechanical properties of graphene. **Material research express** , 3 , 035011.
80. Rajesh Kumar, Rajasekaran G, **Avinash Parashar**, (2016), Optimised cut-off function for Tersoff like potentials for BN nanosheet: A molecular dynamics study. **Nanotechnology**, 27,085706.
81. Rajesh Kumar, **Avinash Parashar**, (2016), Atomistic modelling of mechanical and thermal properties of BN nanofillers: a review. **Nanoscale**, 8,22-49.
82. Rajasekaran G., **Avinash Parashar** (2016) Effect of point and line defects on the properties of graphene. **Critical reviews in solid state and materials sciences**. 41,46-70. **(Listed as highly cited and read article)**

83. **Avinash Parashar**, Pierre Mertiny, (2013) Effect of van der Waals interaction on the fracture characteristics of graphene sheet. *Solid State Communication*. 173, 56-60.
84. **Avinash Parashar**, Pierre Mertiny, (2013) Effect of van der Waals forces on the buckling strength of multiple graphene sheets. *Computational and theoretical nanoscience*, 10, 2626-2630.
85. **Avinash Parashar**, Pierre Mertiny (2013) Multiscale model to study fracture toughening in graphene/polymer nanocomposites, *International journal of fracture*, 179, 221-228.
86. **Avinash Parashar**, Pierre Mertiny, (2013) Failure mechanism in adhesively bonded FRP pipe sections with different fibre architecture, *Composite part B*, 47, 102-106.
87. **Avinash Parashar**, Pierre Mertiny, (2013) Finite element analysis to study the effect of dimensional and geometrical parameters on the stability of graphene sheets. *Journal of computational and theoretical nanoscience*, 10, 292-296.
88. **Avinash Parashar**, Pierre Mertiny, (2012) Representative volume element to estimate buckling behavior of graphene/polymer nanocomposite. *Nanoscale research letters*, 7, 515. (Highly Accessed Article)
89. **Avinash Parashar**, Pierre Mertiny, (2012) Multiscale model to investigate the effect of graphene on the fracture characteristics of graphene/polymer nanocomposite, *Nanoscale research letters*, 7, 595. (In Oct 2012 was listed among the top 20 downloaded papers)
90. **Avinash Parashar**, Pierre Mertiny, (2012) Effect of FRP pipe scaling on its adhesive bonding strength. *Journal of adhesion*, 88, 866-880.
91. **Avinash Parashar**, Pierre Mertiny, (2012) Study of mode I fracture of graphene sheets using atomistic based finite element modeling and virtual crack closure technique. *International journal of fracture*, 176, 119-126.
92. **Avinash Parashar**, Pierre Mertiny, (2012) Adhesively bonded composite tubular joints: Review. *International journal of adhesion and adhesives*, 38, 58-68. (In Oct 2012 was listed among the top 5 downloaded papers)
93. Jasjit Singh Mann, **Avinash Parashar**, Ankur Shah, N.R.Sivakumar, (2010) Numerical and experimental analysis of nanosecond pulsed laser drilling with dual frequency. *International journal of abrasion technology*, 3, 141-156.
94. Ankur Shah, **Avinash Parashar**, Jasjit Singh Mann, N.R. Sivakumar, (2009) Interference assisted laser induced forward transfer for structured patterning. *The open applied physics*, 2, 49-52.
95. **Avinash Parashar**, Jasjit Singh Mann, Ankur Shah, N.R.Sivakumar, (2009) Numerical and experimental study of interference based micromachining of stainless steel. *Journal of laser micro/nano engineering*, 4, 124-127.
96. Jasjit Singh Mann, **Avinash Parashar**, Ankur Shah, N.R.Sivakumar, (2009) Optical setup with high power transmission for creating gratings at the focusing length. *Journal of modern optics*, 56, 1341-1347.

97. **Avinash Parashar**, Jasjit Singh Mann, Ankur Shah, N.R.Sivakumar, (2009) Interference based marking method for toric contact eye lens inserts. **Journal of modern optics**, 56, 855-862.
98. **Avinash Parashar**, Ankur Shah, Muthukumaran Packirisamy, N.R.Sivakumar, (2007) Three cavity tunable MEMS Fabry Perot interferometer. *Journal of sensors*, 7, 3071-3083. (Published in special issue on modeling, testing and reliability issues in MEMS engineering)

Book Chapters

1. Ankur Chaurasia, SandeepKumar Singh, Akarsh Verma , **Avinash Parashar**. (2024) Effect of reinforcing nanomaterials on the glass transient temperature and viscoelastic properties of polymer composites. *In book: Dynamic Mechanical and Creep-Recovery Behavior of Polymer-Based Composites*.
2. Akarsh Verma, **Avinash Parashar** and Adri C.T. van Duin. (2022) “Graphene-reinforced polymeric membranes for water desalination and gas separation/barrier applications” in the book titled “Innovations in Graphene-based Polymer Composites” published by the *Elsevier (Woodhead Publishing)*, Chapter 6, pp.133-165.
3. Akarsh Verma, **Avinash Parashar**, Sandeep Kumar Singh, Naman Jain, Sanjay MR and Suchart Siengchin. (2020) “Modeling and Simulation in Polymer Coatings” in the book titled “Polymer Coatings: Technologies and Applications” published by the *Taylor & Francis Group (CRC Press), Boca Raton*, Chapter 16, pp.309-324.
4. Akarsh Verma, Naman Jain, **Avinash Parashar**, Amit Gaur, Sanjay MR and Suchart Siengchin. (2020) “Lifecycle Assessment of Thermoplastic and Thermosetting Bamboo Composites” in the book titled “Bamboo Fiber Composites - Processing, Properties and Applications” published by the *Springer Nature, Singapore*, Chapter 13, pp.235-246.
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