



Dr. Vidit Gaur

PROFESSOR (ASSTT.) · DESIGN

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“Be the change that you want to see.”

Areas of Interest

- Fatigue, Damage, Design, Fracture Mechanics, Environmental Fatigue, Modeling of Materials, Failure Analysis, FEM, CPFEM, Phase-Field.

Experience

Indian Institute of Technology Roorkee

Uttarakhand, India

PROFESSOR, ASSISTANT

2019 - Till Date

- Courses: Machine Design, Engineering Fracture Mechanics, Machine Drawing, Engineering Drawing
- Professor I/C Mechanics of Materials Laboratory (2019 - till date)
- Warden Rajendra Bhawan (2019 - 2020).
- Professor I/C Fatigue Fracture and Advanced Materials Engineering (F²AME) Laboratory (2020 - till date)

The University of Tokyo

Tokyo, Japan

LEAD RESEARCHER

2016 - 2019

- Fatigue behavior of structural materials for Innovation – Funded by Japanese Government through JST.
- I mainly focused on fatigue module of the SIP-MI project funded by Japanese government through Japan Science and Technology agency (JST).

National Thermal Power Corporation Ltd.

Uttarpradesh, India

EXECUTIVE ENGINEER

2010 - 2012

- Field Quality Assurance Engineer on the construction site of 2x660 MW Supercritical power plant in Meja (Allahabad, India).

Education

École Polytechnique

Paris, France

PH.D IN SOLID MECHANICS

2013 - 2016

- Funded by IFPEN, Rueil-Malmaison - France

Université Pierre et Marie Curie

Paris, France

M.S. IN MATERIALS AND STRUCTURAL MECHANICS

2012 - 2013

- Fully funded scholarship from European-Union Erasmus program

Indian Institute of Technology Roorkee

Uttarakhand, India

B.TECH. IN MECHANICAL AND INDUSTRIAL ENGINEERING

2006 - 2010

Projects

INTERNATIONAL PROJECTS

International Bilateral - Department of Science (DST)

89 Lakh

ROLE : PRINCIPAL INVESTIGATOR

Under - Review

- Fatigue study of additively manufactured structural steel for off-shore wind turbine structures.
- Collaborator : IDMEC- Instituto Superior Tecnico, Portugal.

SPONSORED RESEARCH

Armament Research Board, DRDO

89 Lakh

ROLE : CO-PRINCIPAL INVESTIGATOR

Recommended

- Fatigue Design of Welded Joints in Military Bridges: Experiments and Simulations.
- Collaborator : Research & Development Establishment (Engrs.) Pune.
- Cost : 89 Lakh.

SPARC - Ministry of Human Resource Department

ROLE : PRINCIPAL INVESTIGATOR

- Experimental and numerical investigation of additively manufactured Ni-based super alloys for aerospace applications.
- Collaborator : The University of Tokyo.

39 Lakh
Under - Review

Council of Scientific & Industrial Research - CSIR

ROLE : PRINCIPAL INVESTIGATOR

- Phase-field modelling of stress corrosion cracks including microstructural effects.
- Collaborator : None.

30 Lakh
Under - Review

Startup Research Grant (SRG) - Department of Science (DST)

ROLE : PRINCIPAL INVESTIGATOR

- A study on fatigue damage in additively manufactured IN718 alloy.
- Collaborator : None.
- Cost : 33 Lakh.

33 Lakh
2020 - 2022

PMG Engineering Private Limited

ROLE : PRINCIPAL INVESTIGATOR

- Application of multi-objective generative algorithms in design of complex systems.
- Collaborator : None.

33 Lakh
2020 - 2023

Naval Research Board (NRB)

ROLE : PRINCIPAL INVESTIGATOR

- Fatigue Behavior of Al-Alloy for Marine Applications.
- Collaborator : Defence Metallurgical Research Laboratory (DMRL) & Naval Materials Research Laboratory (NMRL)

38 Lakh
2021 - 2024

Defense Research and Development Organization (DRDO)

ROLE : PRINCIPAL INVESTIGATOR

- Investigation of creep and high temperature fatigue behaviour of additively manufactured Ti-6Al-4V alloys.
- Collaborator : Defence Metallurgical Research Laboratory (DMRL)

46.97 Lakh
2020 - 2023

FIG - IIT Roorkee

ROLE : PRINCIPAL INVESTIGATOR

- Investigation on effect of different post weld solution treatment on fatigue of friction stir welded Al-Cu alloy.
- Collaborator : None

20 Lakh
2019 - 2021

Japan Science and Technology Agency (JST) - UACJ Ltd.

ROLE : LEAD RESEARCHER

- Fatigue behavior of structural materials for Innovation (SIP - Material Integration)
- In-charge of Fatigue fracture studies of Aluminum welds
- Collaborator : Reliable Materials Engineering Lab, University of Tokyo

~ 1 trillion ¥
2016 - 2019

IFP Énergies nouvelles

ROLE : RESEARCHER

- Problem of multiaxial fatigue in clip connectors used for offshore oil drilling.
- Collaborator : Laboratoire de Mécanique des Solides (LMS), France

~ 50k €
2013 - 2016

CONSULTANCY

M/s Oberai Thermit, Noida

ROLE : PRINCIPAL INVESTIGATOR

- Fatigue study of Alumino-Thermit Rail weld joints (R260 60Kg) as per RDSO standards.

21.24 Lakh
2020 - 2022

M/s Ora India Pvt Ltd, Kanpur

ROLE : PRINCIPAL INVESTIGATOR

- Fatigue study of Alumino-Thermit Rail weld joints (52 Kg) as per RDSO standards.

21.24 Lakh
2020 - 2022

M/s Railtech Welding & Equipment India Pvt Ltd, Chhattisgarh

ROLE : PRINCIPAL INVESTIGATOR

- Fatigue testing of 60Kg rails as per RDSO standards.

10.62 Lakh
2021

M/s BHEL, Haridwar

ROLE : PRINCIPAL INVESTIGATOR

- Fracture Mechanics Design Of Identified AUSC Turbine Components.

25.96 Lakh
2020

M/s BHEL, Haridwar

ROLE : PRINCIPAL INVESTIGATOR

- Elastic-Plastic Fracture Mechanics Design Of IP rotor and casing of AUSC project.

24.78 Lakh
2020-21

M/s SP Singla Constructions Pvt Ltd, Haryana

ROLE : CO-PRINCIPAL INVESTIGATOR

- Fatigue design and testing of 15.7mm dia wire strands as per Euro Codes.

12.39 Lakh

2020 - 2021

M/s BSNL National Network Cntr, New Delhi

ROLE : CO-PRINCIPAL INVESTIGATOR

- Fatigue design and testing of rebar couplers Fe500 of dia 16 to 40 mm.

12.09 Lakh

2020 - 2021

M/s PMG Engineering Pvt Ltd, New Delhi

ROLE : PRINCIPAL INVESTIGATOR

- Formulation and validation of generative design algorithm with specific relevance to design of manufacturing plants.

30.68 Lakh

2020 - 2021

M/s Namami Industries, Rajkot

ROLE : PRINCIPAL INVESTIGATOR

- Fatigue testing of 25 and 32 mm dia rebar couplers.

1.77 Lakh

2020

M/s Asahi India Glass Ltd. Hardwar

ROLE : PRINCIPAL INVESTIGATOR

- Design Certification Of Steel Rack For Glass Storage.

1.18 Lakh

2019

M/s Price Pipes and Fittings, Hardwar

ROLE : CO-PRINCIPAL INVESTIGATOR

- Load Bearing Capacity of HDPE Pipes.

0.59 Lakh

2019

International visits

2019	APMAS2019 , Conference Presentation	<i>Oludeniz - Turkey</i>
2018	Técnico Lisboa , Conference Presentation	<i>Lisbon - Portugal</i>
2018	Futuroscope , Conference Presentation	<i>Poitiers - France</i>
2017	Hokkaido University , Seminar	<i>Hokkaido - Japan</i>
2016	Hyannis Conference Center , Conference Presentation	<i>Hyannis - USA</i>
2016	Escuela Técnica Superior De Ingeniería , Conference Presentation	<i>Seville - Spain</i>
2015	Cetim , Conference Presentation	<i>Senlis - France</i>
2015	Ghent University , Conference Presentation	<i>Ghent - Belgium</i>

Collaborations

INTERNATIONAL

1. The University of Tokyo, Japan
2. University of Lisbon, Portugal
3. Korea Advanced Institute of Science and Technology, Republic of South Korea

DOMESTIC

1. Defence Metallurgical Research Laboratory (DMRL)
2. Naval Materials Research Laboratory (NMRL)

Invited Talks

The University of Tokyo

Tokyo, Japan

SEMINAR

June 2016

- Fatigue and Corrosion-Fatigue in Cr-Mo Steel in Biaxial tension.

École Polytechnique de Montréal

Quebec, Canada

SEMINAR

May 2015 - PRESENT

- Fatigue and Corrosion Fatigue in Biaxial Tension.

Honors & Awards

INTERNATIONAL

2012 **European Union Erasmus Mundus Scholarship**, Funded by EU For complete Master's program

Paris, France

DOMESTIC

2020 **Early Career Research Award**, Funded by Department of Science and Technology

New Delhi, India

2009 **French Embassy Scholarship**, Funded by French Embassy for research studies in France

New Delhi, India

Publications

STATISTICS



CITATIONS

86



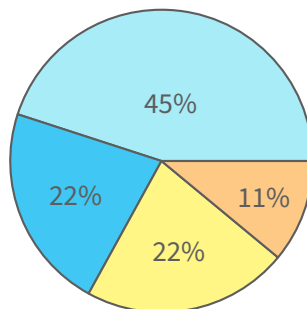
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- International Journal of Fatigue, I.F. 5.19
- Materials Science and Engineering A, I.F. 5.23
- Engineering Fracture Mechanics, I.F. 4.41
- FFEMS, I.F. 3.46

INTERNATIONAL JOURNALS

1. V.K. Yadav, **V. Gaur***, I.V. Singh, "Combined effect of residual and mean stresses on fatigue behavior of welded aluminum 2024 alloy", *International Journal of Fatigue* (2021) 106565. SCI, I.F. 5.19
2. J. Jena, S.K. Singh, **V. Gaur***, I.V. Singh, S. Natarajan, "A new framework based on XFEM for cracked semipermeable piezoelectric material", *Engineering Fracture Mechanics* 253 (2021) 107847. SCI, I.F. 4.41
3. **V. Gaur***, V. Doquet, J. Kittel, E. Persent, E. Roguet, "Corrosion fatigue behavior of Cr-Mo steel under biaxial tension", *Fatigue & Fracture of Engineering Materials & Structures* 43(11) (2020) 2560-2570. SCI, I.F. 3.46
4. V.K. Yadav, **V. Gaur***, I.V. Singh, "Effect of post-weld heat treatment on mechanical properties and fatigue crack growth rate in welded AA-2024" *Materials Science and Engineering A* 779 (2020) 139116. SCI, I.F. 5.23
5. **V. Gaur***, F. Briffod, M. Enoki, "Micro-mechanical investigation of fatigue behavior of Al-alloys containing surface/superficial defects", *Materials Science and Engineering A* 775 (2020) 138925. SCI, I.F. 5.23

6. **V. Gaur***, M. Enoki, T. Okada, S. Yomogida, "Physically short and long-crack growth behavior of MIG welded Al-5.8%Mg alloy", *Engineering Fracture Mechanics* 209 (2019) 301-316. SCI, I.F. 4.41
7. **V. Gaur***, M. Enoki, T. Okada, S. Yomogida, "A study on fatigue behavior of MIG-welded Al-Mg alloy with different filler-wire materials under mean stress", *International Journal of fatigue* 107 (2018) 119-129. SCI, I.F. 5.19
8. **V. Gaur***, V. Doquet, E. Persent, E. Roguet, "Effect of biaxial cyclic tension on the fatigue life and damage mechanisms of Cr-Mo steel", *International journal of fatigue* 87 (2016) 124-131. SCI, I.F. 5.19
9. **V. Gaur***, V. Doquet, E. Persent, C. Mareau, E. Roguet, J. Kittel, "Surface versus internal fatigue crack initiation in steel: Influence of mean stress", *International journal of fatigue* 82 (2016) 437-448. SCI, I.F. 5.19




PROCEEDINGS IN INTERNATIONAL CONFERENCES

1. **V. Gaur***, F. Briffod, M. Enoki, "Prediction of fatigue lives of aluminum alloys using crystal plasticity framework", In Proc. of 9th International Conference on Advances in Applied Physics & Materials Science, Oludeniz - Turkey (2019).
2. **V. Gaur***, M. Enoki, T. Okada, S. Yomogida, "A Crack growth study of MIG-welded Al-Mg alloy", In Proc. of 18th International Conference on New Trends in Fatigue and Fracture, Lisbon - Portugal (2018).
3. **V. Gaur***, M. Enoki, T. Okada, S. Yomogida, "Fatigue life and crack growth behavior of post welded Aluminum 5183 alloy", In Proc. of 12th International fatigue congress, MATEC Web of conferences 165, Poitiers - France (2018).
4. **V. Gaur***, M. Enoki, T. Okada, S. Yomogida, "Influence of Weld Parameters and Filler-Wire on Fatigue Behavior of MIG-Welded Al-5083 Alloy", In Proc. of the 17th International Conference on New Trends in Fatigue and Fracture, 209-214, Springer ISBN 978-3-319-70365-7, Cancun - Mexico (2017).
5. **V. Gaur***, M. Enoki, "A new model for mean-stress effect on fatigue performance", In Proc. of 161st JIM (Japan Institute of Metals) Meeting at Hokkaido University, Hokkaido - Japan (2017).
6. **V. Gaur***, V. Doquet, E. Roguet, E. Persent, "Fatigue behaviour of Cr-Mo steel in air and in salt water under biaxial tension", In Proc. of International Conference on Fatigue Damage of Structural Materials XI, Hyannis - USA (2016).
7. **V. Gaur***, V. Doquet, E. Roguet, E. Persent, "A fatigue criterion to describe the combined effects of biaxial tension and mean stress", In Proc. of 11th International Conference on Multiaxial Fatigue & Fracture, Seville - Spain (2016).
8. **V. Gaur***, V. Doquet, E. Persent, E. Roguet, "Fatigue of clip connectors for offshore drilling risers under combined influence of high mean stress and biaxial tension", In Procedia engineering 133, 90-101, Fatigue design, Senlis - France (2015).
9. **V. Gaur***, V. Doquet, E. Roguet, E. Persent, "Biaxial fatigue of clip connectors for offshore drilling risers under high mean stress", In Proc. of 4th International Conference on Fracture, Fatigue and Wear, 7-12, Ghent - Belgium (2015).
10. **V. Gaur***, A. Ngassa, V. Doquet, E. Roguet, E. Persent, "Fatigue of clip connectors for offshore oil drilling risers under biaxial tension", Poster In proc. 14th International conference on Fatigue design & Material defects, Paris - France (2014).

PHD THESIS

- **V. Gaur***. "Fatigue and corrosion-fatigue in Cr-Mo steel in biaxial tension". Mechanics [physics] English. ffNNT : 2016SACLX027. HAL Id: tel-01438984. Université Paris-Saclay (2016).

Skills

Languages	•  Hindi	•••••
	•  English	•••••
	•  French	•••••
Experimental	• Mechanical Testing	•••••
	• Fatigue - LCF, HCF	•••••
	• Crack growth and closure	•••••
	• Multiaxial Fatigue	•••••
	• FE-SEM, EBSD, EDS	•••••
	• Metallography	•••••
	• Frailure analysis	•••••
	• Welding - FSW, MIG	•••••
Numerical	• Abaqus	•••••
	• Matlab	•••••
	• DIC	•••••
	• Solidworks, CAD	•••••
	• Ansys	•••••
	• Mathematica	•••••
	• Python, C++	•••••

Supervised students

PHD

1. Mr. Vinay Kumar Yadav
2. Mr. Manoj Singh Bisht
3. Mr. Jayamalya Jena
4. Mr. Litton Bhandari
5. Mr. Sumit Choudhary
6. Mr. Aditya Pandey
7. Mr. Rajneesh Jaiswal

MASTER

1. Mr. Abdul Aziz
2. Mr. Gamit Ankit Kumar
3. Mr. Ratnesh Mishra
4. Mr. Shubham Sachdeva