

## Fatigue and Structural Integrity Group (FSIG-UiS)

### Introduction:

The reason of the 98% of the failures of mechanical systems and the 60% of the failures of structures subjected to variable loading conditions is fatigue. A main field of research and teaching activities of the department of Mechanical and Structural Engineering and Materials Science (IMBM) is the design of offshore structures, machine components, subsea systems, buildings, bridges etc. Fatigue damage accumulation modeling and life-time prediction of engineering structures under service loading are main research areas of the FSIG-UiS group. The research portfolio of our experts contains a significant number of research monographs, publications, editorial and review service for high-impact international journals, participation in research projects and collaboration with important industries. Furthermore, their results have international recognition by independent researchers from the academy and industry. Currently, the research team is working on improvement of methods and models for structural design, life-time prediction and health monitoring of structures and machine parts. The FSIG-UiS has access in modern facilities.

### Associated Industries

1. Equinor
2. Subsea 7
3. Aker Solutions
4. DNV
5. Sintef
6. IKM
7. Transneft
8. Emerson
9. CRES [http://www.cres.gr/cres/index\\_uk.html](http://www.cres.gr/cres/index_uk.html)
10. Statens Vegvesen
11. COWI AS



## Associated Universities

1. Ohio State University (USA)
2. Ghent University (Belgium)
3. TU Delft (The Netherlands)
4. University of Porto (Portugal)
5. Gubkin Oil and Gas, State University of Moscow (Russia)
6. NTNU (Norway)
7. University of Agder (Norway)
8. University of Bologna (Italy)
9. National Technical University of Athens NTUA (Hellas)
10. University of Parma (Italy)
11. University of Patras (Hellas)
12. University of Peradeniya (Sri Lanka)
13. University of Ruhuna (Sri Lanka)
14. Kyoto University (Japan)
15. Ehime University (Japan)
16. University of Kentucky (USA)



Norwegian University of Science and Technology



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University of Ruhuna



National Technical University of Athens



## FACILITIES



**Bi-Axial Fatigue Testing Machine**

**Axial/Torsional Loading**

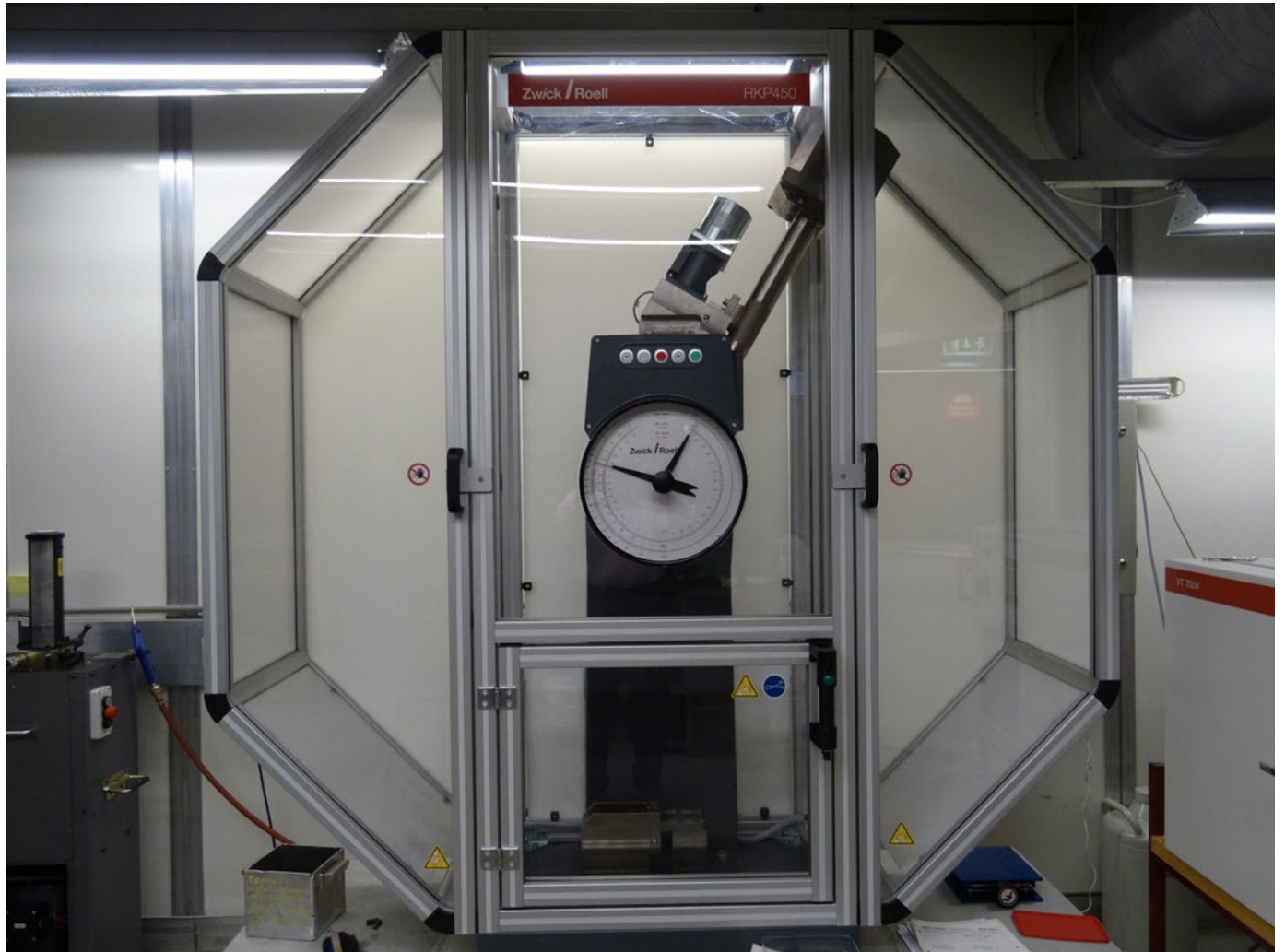


**Transmission Electron Microscope**



**Scanning Electron Microscope**





**Impact Testing Machine**



**CNC Milling Centre for specimen production**

## RESEARCHERS

Academic staff of the FSIG-UiS group:

Prof. Dimitrios G. Pavlou (Fatigue, Fracture Mechanics, Creep, NDT, Structural Health Monitoring, Structural Dynamics, Finite Elements, Composite Materials)

<https://www.uis.no/nb/profile/dimitrios-pavlou>



Prof. Sudath C. Siriwardane (Fatigue, Structural Health monitoring, Steel Structures)

<https://www.uis.no/nb/profile/sudath-c-siriwardane>



Prof. Kenneth Alasdair Macdonald, UiS and Equinor, Head of the BS7910 Fracture Mechanics committee (Fatigue and Structural Integrity of Offshore Structures)

<https://www.uis.no/nb/profile/kenneth-alsadair-macdonald>



Prof. Vidar Hansen (Materials Science, Electron Microscopy, 3D printed materials)

<https://www.uis.no/nb/profile/vidar-folke-hansen>



Prof. Tor Hemmingsen (Corrosion, Electrochemistry)

<https://www.uis.no/nb/profile/tor-henning-hemmingsen>



Prof. Hirpa Gelgele Lemu (Machine design, 3D printing)

<https://www.uis.no/nb/profile/hirpa-gelgele-lemu>



Assoc. Prof. Ove Mikkelsen (Analysis of fatigue problems with FEM)

<https://www.uis.no/nb/profile/ove-kjetil-mikkelsen>



Prof. Jayantha Prasanna Liyanage (Structural integrity management)

<https://www.uis.no/nb/profile/jayantha-prasanna-liyanage>



Assoc. Prof. Nirosha Adasooriya (Corrosion and fatigue)

<https://www.uis.no/nb/profile/mudiyani-irosha-damayanthi-adasooriya>



Prof. II Gerhard Ersdal-UiS and Petroleum Safety Authority of Norway (Fatigue and structural integrity of Offshore Structures)

<https://www.uis.no/nb/profile/gerhard-ersdal>



Prof. II. Torfinn Havn- UiS and Ztrong Partner AS Oil & Energy (Fatigue micro-mechanisms and corrosion)

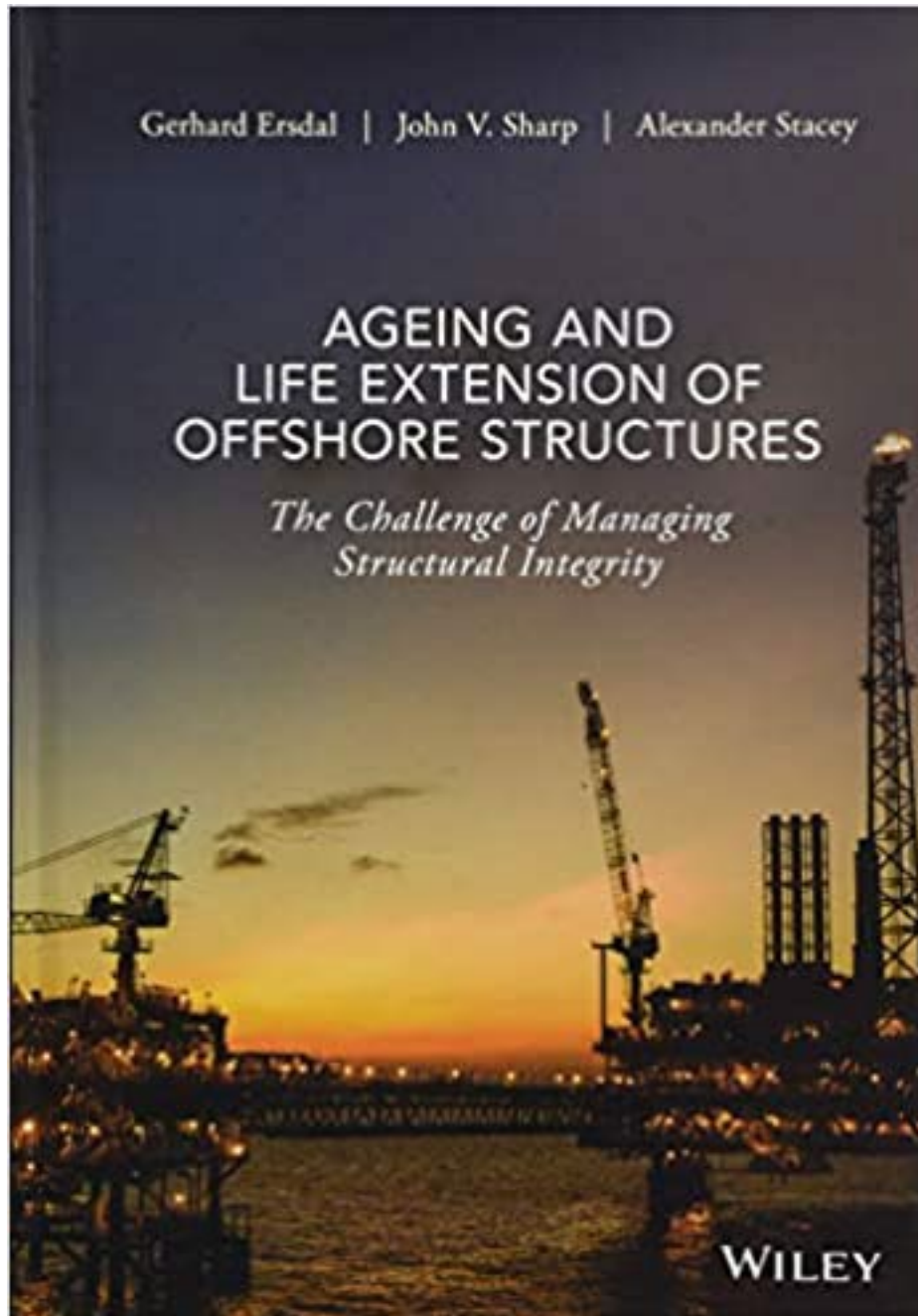
<https://www.uis.no/nb/profile/torfinn-havn>



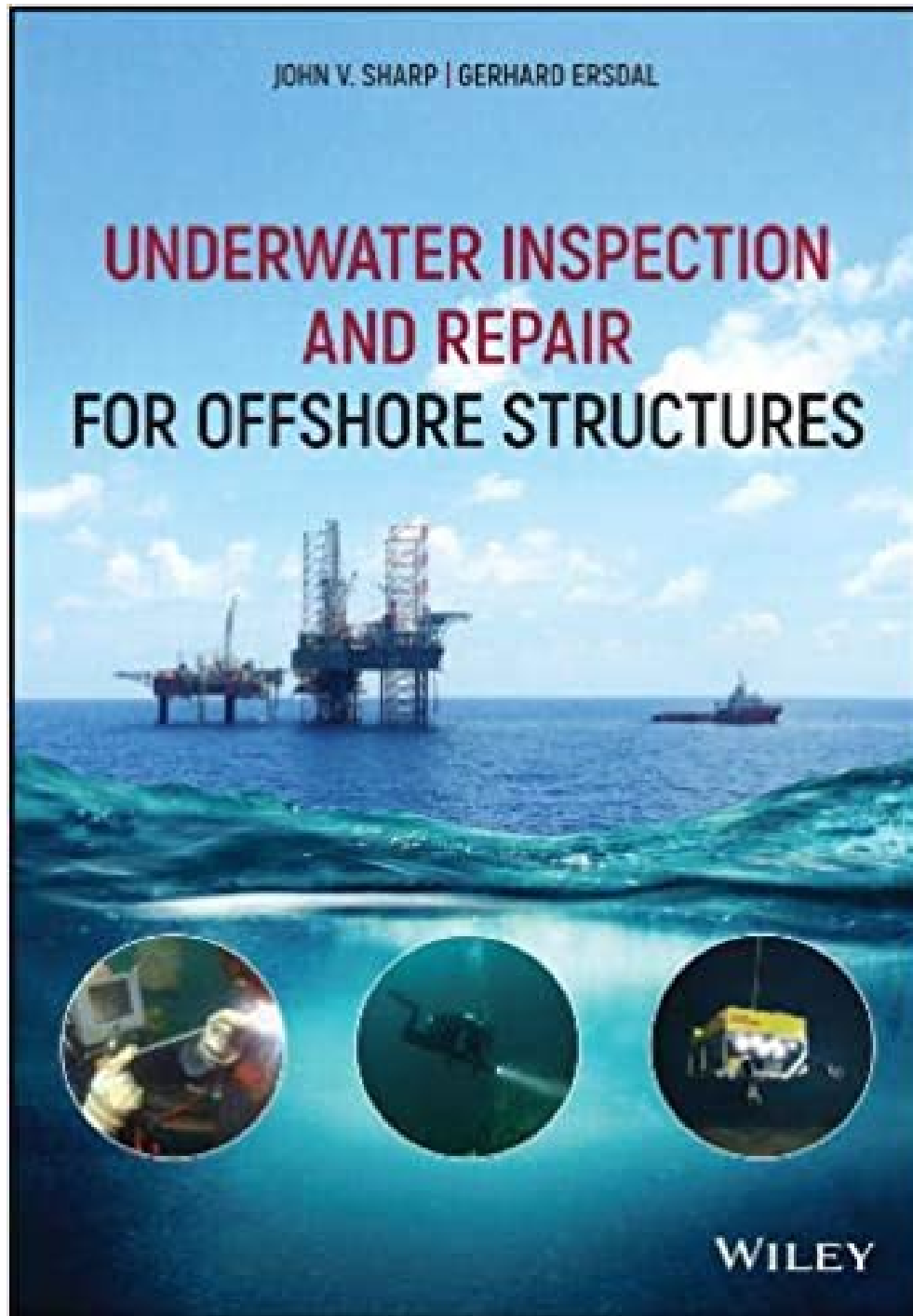


## RESEARCH EXELENCE

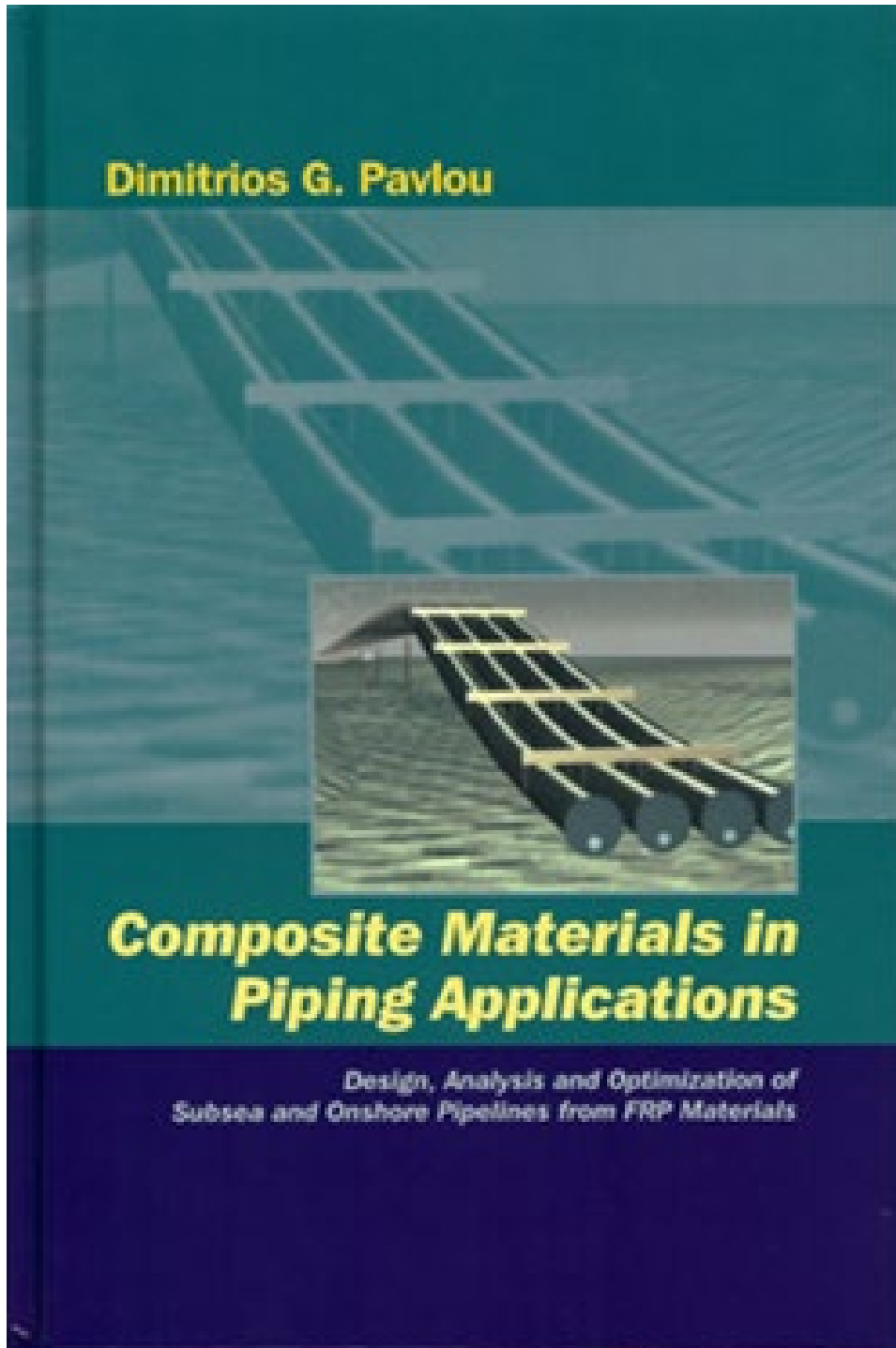
1. **Gerhard Ersdal**, John V. Sharp, Alexander Stacey, Ageing and Life Extension of Offshore Structures: The Challenge of Managing Structural Integrity, Willey 2019.



2. John V. Sharp, **Gerhard Ersdal**, Underwater Inspection and Repair for Offshore Structures 1st Edition, Willey 2021.



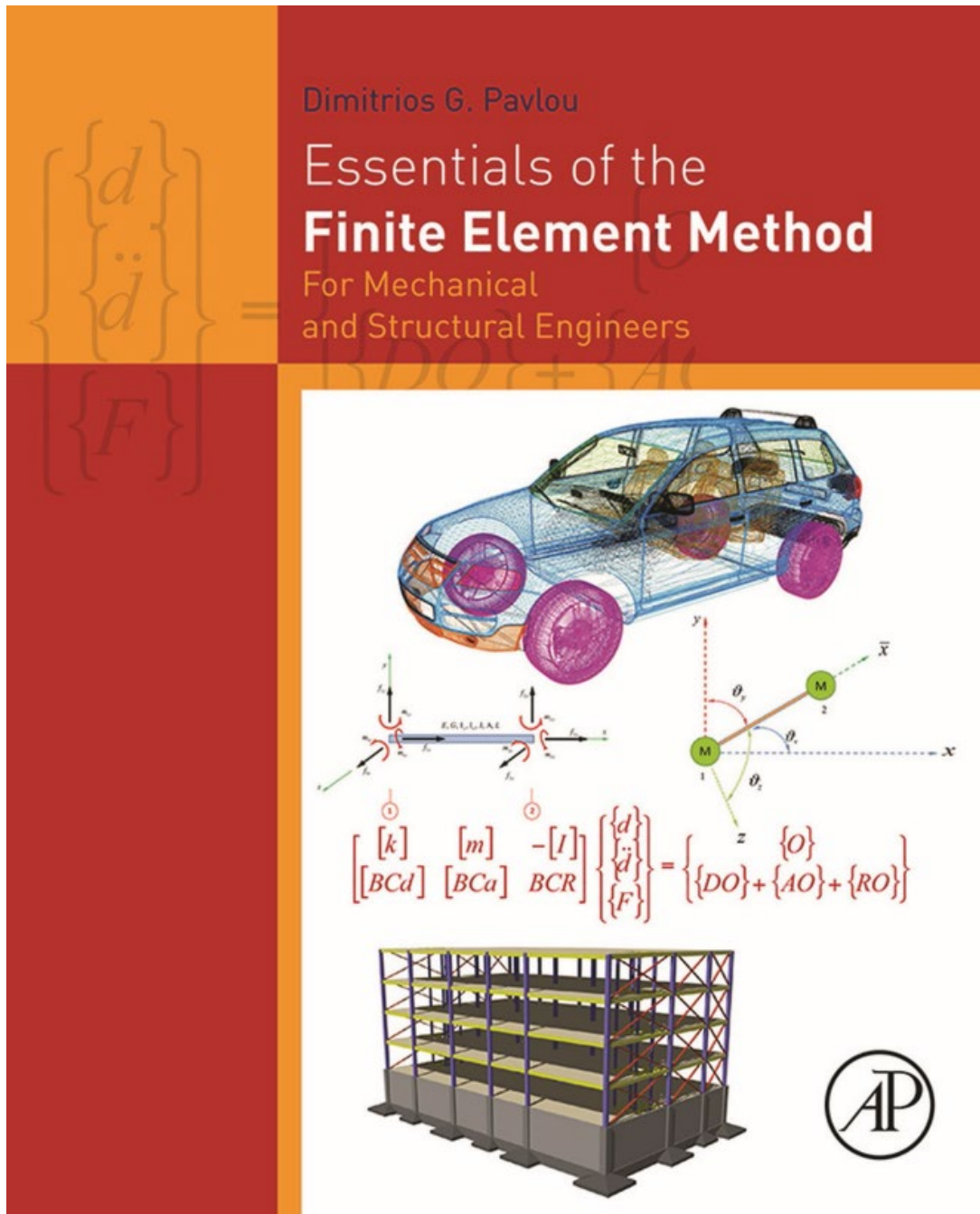
3. **Dimitrios Pavlou**, Composite Materials in Piping Applications, Destech publications, 2013



4. **Dimitrios Pavlou**, Computational and Experimental Analysis of Damaged Materials, Transworld Research Network, 2007



5. **Dimitrios Pavlou**, Essentials of the Finite Element Method, Elsevier, 2015





## EDITORS AND REVIEWERS

The members of FSIG-UiS group are Associate Editors, Academic Editors, Topic Editors, or Editorial Board Members in the following international journals:

1. **Dimitrios Pavlou**, Member of the Editorial Advisory Board of the journal “**Computer-Aided Civil and Infrastructure Engineering**” – **Impact Factor 11.775** (1st of 134 journals in Civil Engineering – 2019 Journal Citation Reports, Clarivate Analytics):  
<https://onlinelibrary.wiley.com/page/journal/14678667/homepage/editorialboard.html>
1. **Dimitrios Pavlou and Sudath Siriwardane**, Associate Editors of the Journal of “**Maritime Engineering**”, <https://www.icevirtuallibrary.com/page/jmaen/editorialpanel>
2. **Dimitrios Pavlou**, Academic Editor at the journal “**Advances in Civil Engineering**”, <https://www.hindawi.com/journals/ace/about/>
3. **Dimitrios Pavlou**, Associate Editor of the “**Journal of Aerospace Technology and Management**”,  
<http://www.scielo.br/revistas/jatm/iedboard.htm#002>
4. **Dimitrios Pavlou**, Editorial Board member of “**International Journal of Structural Integrity**”  
[https://www.emeraldgrouppublishing.com/journal/ijjsi?distinct\\_id=17f0d7356271ac-09859fc02d9f19-a3e3164-1fa400-17f0d735628463&\\_ga=2.72872276.699825636.1645198138-1492042086.1645198138#editorial-team](https://www.emeraldgrouppublishing.com/journal/ijjsi?distinct_id=17f0d7356271ac-09859fc02d9f19-a3e3164-1fa400-17f0d735628463&_ga=2.72872276.699825636.1645198138-1492042086.1645198138#editorial-team)
5. **Dimitrios Pavlou**, Topic editor of the Journal “**Dynamics**”, MDPI publisher,  
[https://www.mdpi.com/journal/dynamics/topic\\_editors](https://www.mdpi.com/journal/dynamics/topic_editors)
6. **Dimitrios Pavlou**, Editorial Board member at the journal “**International Journal of Ocean Systems Management**”, <https://www.inderscience.com/jhome.php?jcode=ijosm>
7. **Dimitrios Pavlou**, Honorable Editor, “**Aeronautics and Aerospace Open Access Journal**”,  
<http://medcraveonline.com/AAOAJ/editorial-board>
8. **Dimitrios Pavlou**, Editorial board member, “**Pipeline Science and Technology**”  
[https://pipeline-science.com/index.php/PST/editorial\\_board](https://pipeline-science.com/index.php/PST/editorial_board)
9. **Dimitrios Pavlou**, Editorial board member, “**Journal of Materials Science and Research**”,

[https://www.gavinpublishers.com/journals/board\\_members/journal-ofmaterials-science-and-research](https://www.gavinpublishers.com/journals/board_members/journal-ofmaterials-science-and-research)

10. **Dimitrios Pavlou**, Editorial board member, ”Журнал «Наука и технологии трубопроводного транспорта нефти и нефтепродуктов», (Level 1), <http://en.pipelinescience.ru/about/redaktor.htm>

**B) Reviewers in the following fatigue Journals:**

Computer-Aided Civil and Infrastructure Engineering

Engineering Fracture Mechanics

International Journal of Solids and Structures

Engineering Failure Analysis

Mechanics Research Communications

Engineering Analysis with Boundary Elements

International Journal of Fatigue

Composite Structures

Composites Part B

Soil Dynamics and Earthquake Engineering

Structural Engineering and Mechanics

Journal of Vibration and Acoustics

Communications in Numerical Methods in Engineering

Applied Mathematical Modelling

Journal of Aerospace Engineering

Proceedings of Royal Society – A

Journal of Pipeline Engineering

Strojniski vestnik – Journal of Mechanical Engineering

Simulation Modelling Practice and Theory

International Journal of Materials Engineering Innovation

Journal of Zhejiang University – SCIENCE A, Publisher: Springer

Journal of Engineering Mathematics

International Journal of Modelling, Identification and Control

Transactions on Civil and Architecture Engineering

Computer Modelling in Engineering & Sciences

Oil and Oil Products Pipeline Transportation

Energies-MDPI

Dynamics-MDPI

## **RESEARCH AND PhD PROJECTS:**

### **1. PhD Projects (completed and ongoing):**

- Load sequence effects and mixed-mode fatigue crack growth in offshore structures, Kristen Rege
- Life extension of offshore structures: a conceptual framework and fatigue damage models, Ashish Aeran
- Structural integrity of steel bridges: Environment-assisted cracking, Nirosha Adasooriya
- Fatigue Damage Assessment of Steel Structures and Components: Improvements in stress-life approach, Chandima S. Bandara
- Stress and Failure of Degraded Offshore Structures ???, Mostafa Atteya
- Fatigue damage prediction of structural steel and AM/3D printing materials: Novel experimental techniques, Fredrik Bjørheim
- Structural health monitoring of offshore structures based on fluid-structure and fatigue-corrosion interaction models, Hadi Pezeshki
- Fatigue capacity of suspensions bridges with an orthotropic deck in steel or aluminum, Bruno Villoria

## 2. Research Projects (completed and ongoing):

Members of the FSIG-UiS group have participated in the following projects:

1. Fatigue Meter for Offshore Structures, Supported by Valide TTO, 2015-2016
2. Design of a fuel cells powered drone for offshore structures inspection, Supported by Nordic Unmanned S.A., industrial PhD, 2018.
3. UTFORSK project: 4-year funding by The Norwegian Centre for International Cooperation in Education (SIU), Russian/Norwegian collaboration in Offshore and Ocean Technology in Arctic Environment, 2018.
5. Investigation on Aluminium-Lithium alloys for Damage Tolerant Application, E.C., BRITE/EURAM, Project reference: BREU0128. Funded under: FP2-BRITE/EURAM 1. Coordinator: Deutsche Aerospace Airbus GmbH  
Participants: Aérospatiale Société Nationale Industrielle SA, British Aerospace, Defence Research Agency (DRA), NLR, Dassault Aviation SA, 1992.
6. Civil Aircraft Protection Against Ice (CAPRI), Project Ref. AERO 0008. Funded under: FP2-AERO 0C. Coordinator: British Aerospace Defence. Participants: Aérospatiale Société Nationale Industrielle, DASSAULT AVIATION, Fokker Aircraft, Lucas Aerospace, Messerschmitt-Bölkow-Blohm GmbH (MBB), Alenia Aerospazio, University College Dublin, Università degli Studi di Napoli Federico II, 1990.
7. Crashworthiness for Commercial Aircraft. Project ref. AER20030, Funded under: FP3-AERO 1C. Coordinator BRITISH AEROSPACE.  
Participants:  
Aérospatiale Société Nationale Industrielle, BAE SYSTEMS; CENTRE D'ESSAIS AERONAUTIQUE DE TOULOUSE; CRANFIELD IMPACT CENTRE LTD., Cad Fem GmbH, Daimler-Benz Aerospace Airbus GmbH, EADS - CONSTRUCCIONES AERONAUTICAS S.A., ENGINEERING SYSTEM INTERNATIONAL, Fokker Aircraft BV, GERMAN AEROSPACE CENTRE, MECALOG SARL, NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH – TNO, OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES, Rheinisch-Westfälische Technische Hochschule Aachen (RWTH), STICHTING NATIONAAL LUCHT- EN RUIMTEVAART LABORATORIUM, University of Liverpool, 1993.
8. Advanced Aluminium-Precision Casting for Integrally Net-Shape-Components (ADVACAST) E.C., BRITE / EURAM, Project reference: BREU0401. Funded under: FP2-BRITE/EURAM 1. Coordinator: Messerschmitt-Bölkow-Blohm GmbH (MBB). Participants:

## **EXPERIENCE IN FATIGUE AND NDT TESTS:**

The members of academic staff who are working on Fatigue have extensive laboratory experience to the following topics:

1. Fatigue life estimation of steel structures considering the loading sequence effect.
2. Grain-scale plasticity based multi-axial fatigue model for tubular joints.
3. Fracture-fatigue interaction effect of steel structures under accidental loadings: (Ultra-low cycle fatigue)
4. Verification of code given stress concentration factors of tubular joints
5. Fatigue life estimation of existing steel structures under time-dependent structural degradation
6. Development of full range fatigue curve for corroded structural detail

## **SELECTED PUBLICATIONS:**

### **Pavlou, Dimitrios.**

A deterministic algorithm for nonlinear, fatigue-based structural health monitoring. Computer-Aided Civil and Infrastructure Engineering 2021 p. 1-23

### **Bjørheim, Fredrik; Siriwardane, Sudath C.; Pavlou, Dimitrios.**

A review of fatigue damage detection and measurement techniques. International Journal of Fatigue 2021 ;Volume 154.

### **Pavlou, Dimitrios.**

The theory of the S-N fatigue damage envelope: Generalization of linear, double-linear, and non-linear fatigue damage models. International Journal of Fatigue 2018 ; Volume 110. p. 204-214

### **Pavlou, Dimitrios.**

Inner flow-induced buckling of FRP catenary risers. Journal of Offshore Mechanics and Arctic Engineering 2020; Volume 142.(6) p. 1-28

### **Pavlou, Dimitrios.**

Soil–Structure–Wave Interaction of Gravity-Based Offshore Wind Turbines: An Analytical Model. Journal of Offshore Mechanics and Arctic Engineering 2020 ; Volume 143.(3)

### **Adasooriya, Mudiyan Nirosha Damayanthi; Hemmingsen, Tor; Pavlou, Dimitrios.**



S-N curve for riveted details in corrosive environment and its application to a bridge. *Fatigue & Fracture of Engineering Materials & Structures (FFEMS)* 2020 ;Volume 43.(6) p. 1199-1213

**Adasooriya, Mudiyan Nirosha Damayanthi; Pavlou, Dimitrios; Hemmingsen, Tor.**

Fatigue strength degradation of corroded structural details: A formula for S-N curve. *Fatigue & Fracture of Engineering Materials & Structures (FFEMS)* 2019 p. 1-13

**Pavlou, Dimitrios.**

Fatigue design challenges: Recent linear and nonlinear models. *IOP Conference Series: Materials Science and Engineering* 2019 ;Volume 700.(1) p. 1-8

**Pavlou, Dimitrios.**

Longitudinal-flexural-torsional dynamic behavior of liquid-filled pipelines: An analytic solution. *Journal of Offshore Mechanics and Arctic Engineering* 2019 ;Volume 142.(1) p. -

**Pavlou, Dimitrios; Correia, Jose Antonio.**

Dynamic response of pipelines under impact and harmonic loading. *Proceedings of the Institution of Civil Engineers : Maritime Engineering* 2019 ;Volume 172.(1) p. 15-22

**Rege, Kristen; Grønsund, Jørgen; Pavlou, Dimitrios.**

Mixed-mode I and II fatigue crack growth retardation due to overload: An experimental study. *International Journal of Fatigue* 2019 ;Volume 129. p. 1-12

**Rege, Kristen; Pavlou, Dimitrios.**

Effect of stop holes on structural integrity of offshore structures: a numerical model. *Proceedings of the Institution of Civil Engineers : Maritime Engineering* 2019 ;Volume 172.(1) p. 3-14

**Rege, Kristen; Pavlou, Dimitrios.**

Stress intensity factors for circumferential through-wall cracks in thin-walled cylindrical shells subjected to tension and torsion. *Fatigue & Fracture of Engineering Materials & Structures (FFEMS)* 2019 ;Volume 42.(5) p. 1062-1074

**Pavlou, Dimitrios.**

Mode I+II fatigue crack growth delay by stop-holes. *Journal of Aerospace Technology and Management* 2018 ;Volume 10. p. -

**Adasooriya, Mudiyan Nirosha Damayanthi; Hemmingsen, Tor; Pavlou, Dimitrios.**

Fatigue strength degradation of metals in corrosive environments. *IOP Conference Series: Materials Science and Engineering* 2017 ;Volume 276.(1) p. -

**Rege, K., Pavlou, D.G.,** A one-parameter nonlinear fatigue damage accumulation model, *International Journal of Fatigue*, 98, 2017, pp. 234-246.

**Pavlou D.G.,** Loading sequence effects on fatigue damage accumulation of offshore structures: A deterministic approach, *Proceedings of the International Conference on Offshore Mechanics and Arctic Engineering – OMAE*, Volume 4, 2017

**Mikkelsen, O.; Rege, K.; Hemmingsen, T.H.; Pavlou, D.G.**, Numerical Estimation of the Stop Holes-Induced Fatigue Crack Growth Retardation in Offshore Structures Taking into Account the Corrosion Effect. I: The Proceedings of the twenty-seventh (2017) International Ocean and Polar Engineering Conference - ISOPE 2017. International Society of Offshore & Polar Engineers 2017 ISBN 978-1-880653-97-5. s. 451-458

**Pavlou D.G.**, Fatigue crack deflection-induced retardation based on the principle of the minimum potential energy, *International Review of Mechanical Engineering*, Volume 9, Issue 3, 1 May 2015, Pages 324-330.

**Pavlou D.G.**, Simulation of mode I+II crack propagation trajectories under static loading, *International Review on Modelling and Simulations*, Volume 8, Issue 4, 2015, Pages 499-504.

**Pavlou D.G.**, Kourousis K.I., A phenomenological approach for fatigue damage accumulation of CF/PEEK laminates under two-stage loading, *International Review of Mechanical Engineering* Volume 7, Issue 7, November 2013, Pages 1323-1328.

**Pavlou D.G.**; Labeas G.N.; Vlachakis N.V.; Pavlou F.G., [Fatigue crack propagation trajectories under mixed-mode cyclic loading](#): *Engineering Structures*, 2003, vol. 25, no. 7, pp. 869-875.

**Ashish Aeran, Sudath C. Siriwardane, Ove Mikkelsen and Ivar Langen** (2017), A new nonlinear fatigue damage model based only on S-N curve parameters, *Int. Journal of Fatigue*, Elsevier, 103, pp.327-341.

**Ashish Aeran, Sudath C. Siriwardane, Ove Mikkelsen and Ivar Langen** (2017), A framework to assess structural integrity of ageing offshore jacket structures for life extension, *Marine Structures*, Elsevier, 56, pp.237-259.

**Ashish Aeran, Sudath C. Siriwardane, Ove Mikkelsen and Ivar Langen (2017)**, Life Extension of Ageing Offshore Structures: A Framework for Remaining Life Estimation, Volume 3A, Paper No. OMAE2017-62063, 9 pages, 36th International Conference on Ocean, Offshore and Arctic Engineering, Trondheim, Norway.

**Nirosha D. Adasooriya, Sudath C. Siriwardane and Mitao Ohga**, (2013) "A simplified approach to predict the failure of steel members under interaction effect of fracture and fatigue", *Int. Journal of Fatigue*, Elsevier 47 (2), pp. 161-173. <http://www.sciencedirect.com/science/article/pii/S0142112312002599?v=s5>

**Nirosha D. Adasooriya, Tor Hemmingsen and Dimitrios Pavlou** (2017), Fatigue Strength Degradation of Metals in Corrosive Environments, 1<sup>st</sup> conference of computational methods in offshore technology, CoTech 2017, November 30-December 1, 2017, Stavanger, Norway.

**Sudath C. Siriwardane, Nirosha D. Adasooriya and Dimitrios Pavlou** (2021), Fatigue Strength Curve for Tubular Joints of Offshore Structures under Dynamic Loading, *Dynamics*, 1, pp. 125-133.

Ashish Aeran, Ruth Acosta, **Sudath C. Siriwardane**, Peter Starke, Ove Mikkelsen, Ivar Langen and Frank Walther (2020), A nonlinear fatigue damage model: Comparison with experimental damage evolution of

S355 (SAE 1020) structural steel and application to offshore jacket structures, *International Journal of Fatigue*, Elsevier, 135, 105568.

Ashish Aeran, Sabrina Vantadori, Andrea Carpinteri, **Sudath C. Siriwardane** and Daniela Scorza (2019), Novel non-linear relationship to evaluate the critical plane orientation, *International Journal of Fatigue*, Elsevier, 124, pp. 537-543.

**Sudath C. Siriwardane** (2017), Modal flexibility-based damage detection of truss bridges: A conceptual framework, *WIT Transactions on Engineering Sciences*, 116. pp. 131-137.

Chaminda S. Bandara, **Sudath C. Siriwardane**, Udaya I. Dissanayake and Ranjith Dissanayake (2016), Full range S–N curves for fatigue life evaluation of steels using hardness measurements, *International Journal of Fatigue*, Elsevier, 82 (2), pp.325-331.

Chaminda S. Bandara, **Sudath C. Siriwardane**, Udaya I. Dissanayake and Ranjith Dissanayake (2015), Developing a full range S–N curve and estimating cumulative fatigue damage of steel elements, *Computational Materials Science*, Elsevier, 96, pp. 96-101.

Chaminda S. Bandara, **Sudath C. Siriwardane**, Udaya I. Dissanayake and Ranjith Dissanayake (2014), Fatigue failure predictions for steels in the very high cycle region - A review and recommendations, *Engineering Failure Analysis*, Elsevier, 45, pp. 421-435.

Chaminda S. Bandara, **Sudath C. Siriwardane**, Udaya I. Dissanayake and Ranjith Dissanayake (2013), Fatigue Strength Prediction Formulae for Steels and Alloys in the Gigacycle Regime, *International Journal of Materials, Mechanics and Manufacturing*, 1(3), 256-260

**Morten A. Langøy** and Stuart R. Stock, “Fatigue Crack Growth in Ti-6Al-4V-0.1Ru in Air and Seawater. Part I: Design of Experiments Assessment and Crack Growth Rate Curves”, *Metallurgical and Materials Transactions A*, 2001, Vol. 32A, pp. 2297-2314.

**Pavlou D.G.**, [A phenomenological fatigue damage accumulation rule based on hardness increasing, for the 2024-T42 aluminum: \*Engineering Structures\*](#), 2002, vol. 24, no. 11, pp. 1363-1368.

**Nirosha D. Adasooriya and Sudath C. Siriwardane** (2013) “Remaining fatigue life estimation of corroded bridge members”, *Fatigue & Fracture of Engineering Materials & Structures*, Wiley, In press.: (doi:10.1111/ffe.12144).

**Morten A. Langøy** and Stuart R. Stock, “Fatigue Crack Growth in Ti-6Al-4V-0.1Ru in Air and Seawater. Part II: Crack Path and Microstructure”, *Metallurgical and Materials Transactions A*, 2001, Vol. 32A, pp. 2315-2324.

Mavrothanasis, F.I.; **Pavlou, Dimitrios**.

Green's function for KI determination of axisymmetric elastic solids containing external circular crack. *Engineering Fracture Mechanics* 2008

Mavrothanasias, F.I.; **Pavlou, Dimitrios.**

Mode-I stress intensity factor derivation by a suitable Greens function. Engineering analysis with boundary elements 2007

**Pavlou, Dimitrios.**

Greens function for a pre-stressed thin plate on an elastic foundation under axisymmetric loading. Engineering analysis with boundary elements 2005

**Pavlou, Dimitrios;** Vlachakis, N.V.; Pavlou, M.G..

An analytical solution of the annular plate on elastic foundation. Structural Engineering and Mechanics 2005

**Pavlou, Dimitrios.**

Boundary element analysis of a plate on an elastic foundation loaded by a twisted annular rigid stamp. Proceedings of the Institution of mechanical engineers. Part J, journal of engineering tribology 2004

**Pavlou, Dimitrios;** Vlachakis, N.V.; Pavlou, M.G.; Vlachakis, V.N..

Estimation of fatigue crack growth retardation due to crack branching. Computational Materials Science 2004

**Pavlou, Dimitrios;** Labeas, G.N.; Vlachakis, N.V.; Pavlou, F.G..

Fatigue crack propagation trajectories under mixed-mode cyclic loading. Engineering structures 2003

**Pavlou, Dimitrios.**

Boundary-integral equation analysis of twisted internally cracked axisymmetric bimaterial elastic solids. Computational Mechanics 2002

**Pavlou, Dimitrios.**

Green's function for the bimaterial elastic solid containing interface annular crack. Engineering analysis with boundary elements 2002

**Pavlou D.G.,** [Creep life prediction under stepwise constant uniaxial stress and temperature conditions: Engineering Structures](#), 2001, vol. 23, no. ER6, pp. 656-662.

**Siriwardane, S.A.S.C. and Ratnayake, R.M.C.** (2012), "A damage model to estimate fatigue life of steel connections ", Proceedings of the Nordic Steel Construction Conference 2012, Oslo.

**Morten A. Langøy** and Stuart R. Stock: "Use of Experiments for Evaluating Fatigue Crack Growth Properties of an Titanium Alloy Intended for Dynamic Risers", The 9<sup>th</sup> World Conference on Titanium, Saint Petersburg, 7-11 June 1999.

**Pavlou D.G.**, [Prediction of fatigue crack growth under real stress histories](#): [Engineering structures](#), 2000, vol. 22, no. 12, pp. 1707.

**Siriwardane, S.A.S.C.** and **Ratnayake, R.M.C.** (2012), "A Simple Criterion to Predict Fracture of Offshore Steel Structures in Extremely-Low Cycle Fatigue Region", Proceedings of the ASME 31st International Conference on Ocean, Offshore and Arctic Engineering, OMAE2012-83432.

**Morten A. Langøy** and Stuart R. Stock: "Fractographic and Metallographic Investigation of Microstructural Sensitive Fatigue Crack Growth for Ti-6Al-4V-0.1Ru in Air and Seawater", The 9<sup>th</sup> World Conference on Titanium, Saint Petersburg, 7-11 June 1999.

**Pavlou D.G.**; Vlachakis N.V.; Pavlou M.G.; Vlachakis V.N., [Estimation of fatigue crack growth retardation due to crack branching](#): [Computational Materials Science](#), 2004, vol. 29, no. 4, pp. 446-452.

**S.A.S.C. Siriwardane**, M. Ohga, P.B.R. Dissanayake and T. Kaita, (2010) "Structural appraisal based different approach to estimate the remaining fatigue life of railway bridges", *Structural Health Monitoring: an International Journal*, Sage, 9(4), 323-339. ([doi:10.1177/1475921710361320](#)).

Jake D. Haase, Abbas Guvenilir, Jason R. With, **Morten A. Langøy** and Stuart R. Stock: "Microtexture, Asperities, and Crack Deflection in Al-Li2090 T8E41", Mixed-Mode Crack Behavior, ASTM STP 1359, K.J. Miller and D.L. McDowell, Eds., ASTM, 1999, pp. 160-173.

**Pavlou D.G.**; Vlachakis N.V.; Mavrothanas F.I.; Avlonitis S.; Pavlou M.G.; Vlachakis V.N., [Creep sagging analysis of pressure pipes II: Damage accumulation under variable temperature and pressure conditions](#): [Computational Materials Science](#), 2007, vol. 40, no. 1, pp. 114-118.

**Sudath Siriwardane**, Mitao Ohga, Tatsumasa Kaita and Ranjith Dissanayake, (2009), "Grain-scale plasticity based fatigue model to estimate fatigue life of bridge connections", *Journal of Constructional Steel Research*, Elsevier, 65(10-11), 1942-1953. ([doi:10.1016/j.jcsr.2009.05.002](#)).

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