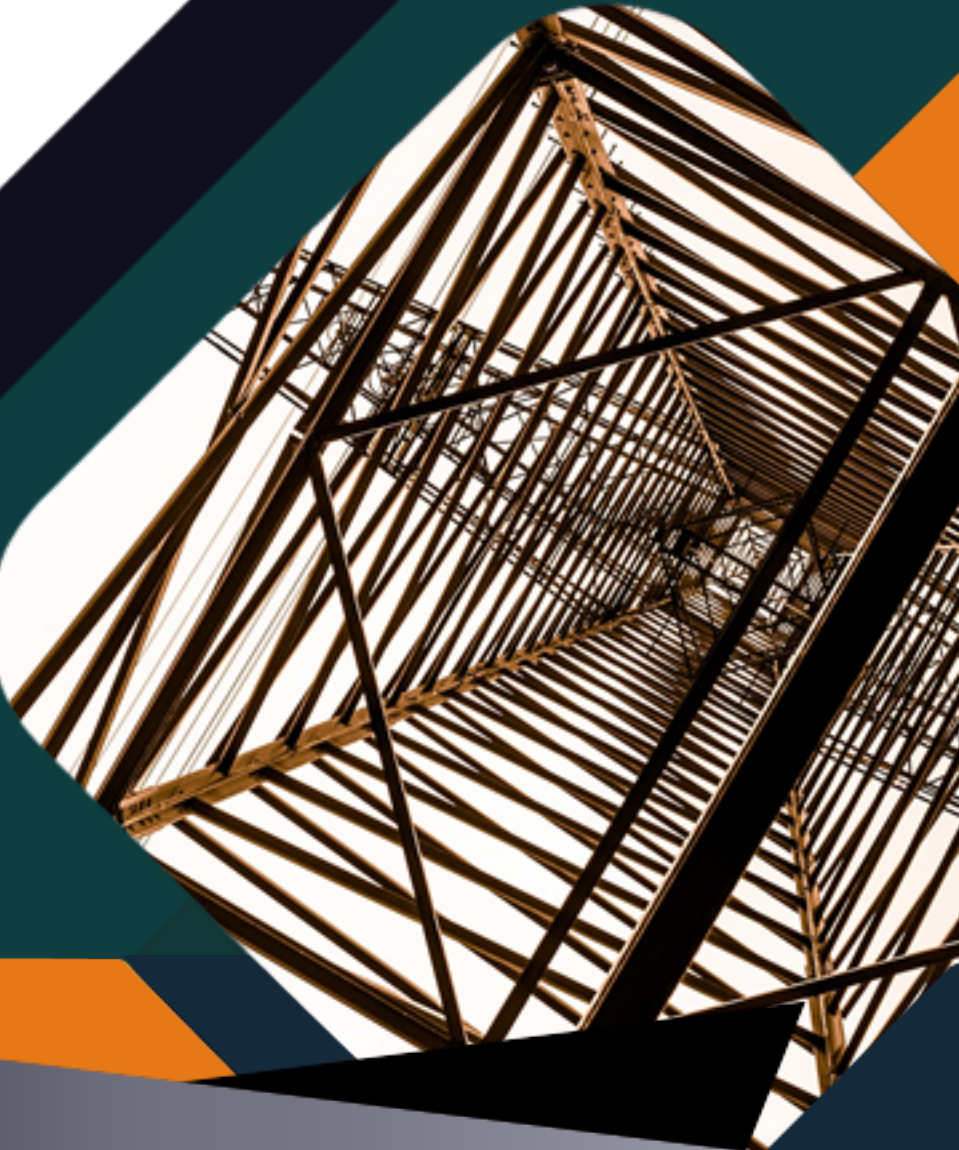


IGF Video recordings

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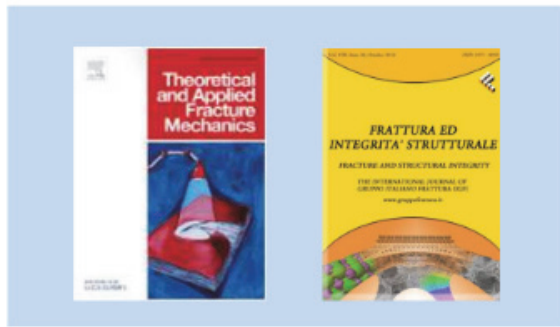


The first International Workshop on
“Challenges in Multiaxial Fatigue”



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April 22-24, 2015 – Urbino, Italy



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1ST INTERNATIONAL WORKSHOP ON

Challenges in Multiaxial Fatigue

Urbino, Italy

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22-24 April 2015

BACKGROUND

In situations of practical interest, mechanical components are subjected to complex systems of cyclic forces resulting in local multiaxial stress/strain states. Due to the scientific/industrial relevance of such an engineering problem, since the pioneering work done by Gough, a tremendous effort has been made by the international scientific community both to understand the cracking behaviour of materials damaged by bi/tridimensional cyclic stress/strain states and to devise safe engineering procedures suitable for designing mechanical components against multiaxial fatigue. Due to such extensive and systematic investigations, nowadays, when assessing real components, engineers can take full advantage of many well-established methods as well as of many experimental findings.

In this complex scenario, the organisers of the present workshop believe that it would be useful for those researchers systematically working on multiaxial fatigue to gather together to revisit and perhaps revise those ideas and concepts which have been proposed and validated so far. This is aimed to be done by collegially discussing state-of-the-art solutions, trying to answer the most critical open questions about this complex problem. The organisers of this unique workshop are confident that the fatigue and fracture community would benefit from an opportunity for invited researchers to present and exchange new data and cutting edge ideas related to multiaxial fatigue in an informal, interactive format at a venue in a beautifully scenic Italian city.

VIDEO-PRESENTATIONS

Presentation title	Authors	DOI
Time and Frequency Domain Models for multiaxial fatigue life estimation under random loading	A. Carpinteri, A. Spagnoli, C. Ronchei, S. Vantadori	https://doi.org/10.53255/IGFTUBE.WS2015_B.1
A Critical Review of Fracture Mechanics as a tool for multiaxial fatigue life prediction of plastics	A. Winkler, G. Kloosterman	https://doi.org/10.53255/IGFTUBE.WS2015_B.2
Comparison of two multiaxial fatigue life prediction models to dental implants	M. Ayllòn, C. Navarro, J. Vazquez, J. Dominguez	https://doi.org/10.53255/IGFTUBE.WS2015_B.3
Competition between microstructure and defect in multiaxial high cycle fatigue	F. Morel, R. Guerchais, C. Robert, N. Saintier, T. Palin-Luc	https://doi.org/10.53255/IGFTUBE.WS2015_B.4
Crack tip fields in elastic plastic and mixed mode I + II + III conditions, finite elements simulations and modeling	F. Fremy, S. Pommier, E. Galenne, S. Courtin	https://doi.org/10.53255/IGFTUBE.WS2015_B.5
Critical Plane Approach to Multiaxial variable amplitude fatigue loading	Y. Wang, L. Susmel	https://doi.org/10.53255/IGFTUBE.WS2015_B.6
Equivalent configurations for notch and fretting fatigue	J. A. Araujo, F. C. Castro, S. Pommier, J. Bellecave, J. Meriaux	https://doi.org/10.53255/IGFTUBE.WS2015_B.7
Estimation of fatigue life of selected construction materials under cyclic loading	M. Kurek, T. Lagoda, S. Vantadori	https://doi.org/10.53255/IGFTUBE.WS2015_B.8
Estimation of fretting fatigue life using a multiaxial stress-based critical distance methodology	F. Castro, J. Araujo, L. Susmel, M. Pires	https://doi.org/10.53255/IGFTUBE.WS2015_B.9
Evaluation and Visualization of Multiaxial stress and strain states under non-proportional loading	T. Itoh, T. Morishita, M. Sakane	https://doi.org/10.53255/IGFTUBE.WS2015_B.10
Fast assessment of critical principal stress direction for multiple separated multiaxial loading	M. cova, P. Livieri, R. Tovo	https://doi.org/10.53255/IGFTUBE.WS2015_B.11

Presentation title	Authors	DOI
Known knowns, known unknowns and unknown unknowns in multiaxial fatigue assessment	D. F. Socie	https://doi.org/10.53255/IGFTUBE.WS2015_B.12
Microstructural Study of Multiaxial low cycle fatigue	M. Sakane, T. Itoh	https://doi.org/10.53255/IGFTUBE.WS2015_B.13
Microstructurally based micromechanical modeling of multiaxial highcycle fatigue strength: recent advances and new challenges	N. Saintier, A. Hor, F. Morel, T. Palin-Luc, C. Robert	https://doi.org/10.53255/IGFTUBE.WS2015_B.14
Multiaxial fatigue of aluminium friction stir welden joint: preliminary results.	D. G. Hattingh, M. N. James, L. Susmel, R. Tovo	https://doi.org/10.53255/IGFTUBE.WS2015_B.15
Multiaxial fatigue strength of severely notched titanium grade 5 alloy	F. Berto, A. Campagnolo	https://doi.org/10.53255/IGFTUBE.WS2015_B.16
Multiaxial Fatigue Reflections on Three decades of research	A. Fatemi	https://doi.org/10.53255/IGFTUBE.WS2015_B.17
Multi challenge aspects in fatigue due to the combined occurrence of multiaxiality, variable amplitude loading and size effects	M. Vormwald	https://doi.org/10.53255/IGFTUBE.WS2015_B.18
Non-proportionality measures for multiaxial fatigue loadings	A. Bolchoun, C. M. Sonsino, H. Kaufmann	https://doi.org/10.53255/IGFTUBE.WS2015_B.19
On the Applicability of Multi Surface, two-surface and non-linear kinematic hardening models in multiaxial fatigue	M. A. Meggioaloro, J. T. P. Castro, H. Wu	https://doi.org/10.53255/IGFTUBE.WS2015_B.20
Random accumulated damage evaluation under multiaxial fatigue loading conditions	V. Anes, I. reis, M. de Freitas	https://doi.org/10.53255/IGFTUBE.WS2015_B.21
Role of multiaxial stress state in the hydrogen-assisted rolling-contact fatigue in bearings for wing turbines	J. Toribio, M. Lorenzo, D. Vergara	https://doi.org/10.53255/IGFTUBE.WS2015_B.22
Shortcuts in Multiple Dimensions The multiaxial Racetrack filter	M. A. Meggioaloro, J. T. P. Castro, H. Wu	https://doi.org/10.53255/IGFTUBE.WS2015_B.23

