

12th International Conference on Damage Assessment of Structures (DAMAS 2017)

Journal of Physics: Conference Series Volume 842

Kitakyushu, Japan
10 – 12 July 2017

ISBN: 978-1-5108-4186-4
ISSN: 1742-6588

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2017) by the Institute of Physics
All rights reserved. The material featured in this book is subject to
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 842

12th International Conference on Damage Assessment of Structures

10–12 July 2017, Kitakyushu, Japan

Accepted papers received: 9 May 2017

Published online: 2 June 2017

Preface

011001

OPEN ACCESS

[12th International Conference on Damage Assessment of Structures](#)

011002

OPEN ACCESS

[Peer review statement](#)

Structural Health and Condition Monitoring

012001

OPEN ACCESS

[A Robust Poincare Maps Method for Damage Detection based on Single Type of Measurement](#)

Zhi-Bo Yang, Ya-Nan Wang, Hao Zuo, Xing-Wu Zhang, Yong Xie and Xue-Feng Chen.....1

012002

OPEN ACCESS

[A new fault detection strategy using the enhancement ensemble empirical mode decomposition](#)

Jiawei Xiang and Yongteng Zhong.....9

012003

OPEN ACCESS

[A study on the inclusion sizing using immersion ultrasonic C-scan imaging](#)

D Chen, H F Xiao, M Li and J W Xu.....18

012004

OPEN ACCESS

[The modal surface interpolation method for damage localization](#)

Maria Pina Limongelli.....25

012005

OPEN ACCESS

[Effect of vitro preservation on mechanical properties of brain tissue](#)

Wei Zhang, Yi-fan Liu, Li-fu Liu, Ying Niu, Jian-li Ma and Cheng-wei Wu.....33

012006

OPEN ACCESS

[Is it worth changing pattern recognition methods for structural health monitoring?](#)

L A Bull, K Worden, E J Cross and N Dervilis.....39

012007

OPEN ACCESS

[Damage localization and quantification in simply supported beams using static test data](#)

Q Ma and M Solís.....50

012008

OPEN ACCESS

[Effect of test frequency on fatigue strength of AZ31 alloy](#)

G J Lu, Y Koyanagi, M Tsushida, H Kitahara and S Ando.....58

012009

OPEN ACCESS

[A vibration-based health monitoring program for a large and seismically vulnerable masonry dome](#)

M L Pecorelli, R Ceravolo, G De Lucia and R Epicoco.....64

012010

OPEN ACCESS

[Study on the evaluation of erosion damage by using laser ultrasonic integrated with a wavelet analysis technique](#)

T Wan, T Naoe, T Wakui, M Futakawa, H Obayashi and T Sasa.....75

012011

OPEN ACCESS

[Application of vision measurements for modal analysis of wires for the purpose of overhead transmission lines monitoring](#)

Krzysztof Mendrok, Ziemowit Dworakowski, Krzysztof Holak and Piotr Kohut.....85

012012

OPEN ACCESS

[Data driven innovations in structural health monitoring](#)

M J Rosales and R Liyanapathirana.....93

012013

OPEN ACCESS

[A new frequency matching technique for FRF-based model updating](#)

Xiuming Yang, Xinglin Guo, Huajiang Ouyang and Dongsheng Li.....104

012014

OPEN ACCESS

[Application of proper orthogonal decomposition and radial basis functions for crack size estimation using particle swarm optimization](#)

B Benaissa, M Köppen, M Abdel Wahab and S Khatir.....114

012015

OPEN ACCESS

[Influence of Torsional Excitation on Dynamic Responses of Rotors with a Breathing Slant Crack](#)

Zhiwen Lu, Chunrong Hua, Dawei Dong, Bing Yan and Kang Fan.....125

012016

OPEN ACCESS

[Review on structural damage assessment via transmissibility with vibration based measurements](#)

Yun-Lai Zhou, Cao Hongyou, Ni Zhen and Magd Abdel Wahab.....136

012017

OPEN ACCESS

[Damages detection in cylindrical metallic specimens by means of statistical baseline models and updated daily temperature profiles](#)

Rodolfo Villamizar-Mejia, Luis-Eduardo Mujica-Delgado, Magda-Liliana Ruiz-Ordóñez, Jhonatan Camacho-Navarro and Gustavo Moreno-Beltrán.....142

012018

OPEN ACCESS

[Structural damage continuous monitoring by using a data driven approach based on principal component analysis and cross-correlation analysis](#)

Jhonatan Camacho-Navarro, Magda Ruiz, Rodolfo Villamizar, Luis Mujica, Gustavo Moreno-Beltrán and Jabid Quiroga.....151

012019

OPEN ACCESS

[Ensemble learning as approach for pipeline condition assessment](#)

Jhonatan Camacho-Navarro, Magda Ruiz, Rodolfo Villamizar, Luis Mujica and Gustavo Moreno-Beltrán.....160

012020

OPEN ACCESS

[Structural system identification by utilizing transmissibility coherence from limited measured data](#)

Yun-Lai Zhou, Cao Hongyou, Ni Zhen, Li Zhang and Magd Abdel Wahab.....170

012021

OPEN ACCESS

[Identification of Bouc-Wen hysteretic parameters based on enhanced response sensitivity approach](#)

Li Wang and Zhong-Rong Lu.....177

012022

OPEN ACCESS

[Multi-damage identification based on joint approximate diagonalisation and robust distance measure](#)

S Cao and H Ouyang.....185

012023

OPEN ACCESS

[Structure damage identification under ambient excitation based on wavelet packet analysis](#)

Qingzhou Li and Dongsheng Li.....193

012024

OPEN ACCESS

[Research on the spatial analysis method of seismic hazard for island](#)

Jing Jia, Jitong Jiang, Qiuhong Zheng and Huiying Gao.....205

012025

OPEN ACCESS

[Assessment of vocal cord nodules: a case study in speech processing by using Hilbert-Huang Transform](#)

M Civera, C M Filosi, N M Pugno, M Silvestrini, C Surace and K Worden.....217

012026

OPEN ACCESS

[Minimum constitutive relation error based static identification of beams using force method](#)

Jia Guo and Izuru Takewaki.....234

012027

OPEN ACCESS

[A proposal application based on strain energy for damage detection and quantification of beam composite structure using vibration data](#)

S Tiachacht, A Bouazzouni, S Khatir, M A behtani, Y-L Zhou and M Abdel Wahab.....244

012028

OPEN ACCESS

[Damage localization and quantification of composite stratified beam Structures using residual force method](#)

A Behtani, A Bouazzouni, S Khatir, S Tiachacht, Y-L Zhou and M Abdel Wahab.....256

012029

OPEN ACCESS

[Sub-surface defects detection of by using active thermography and advanced image edge detection](#)

Peter W. Tse and Gaochao Wang.....266

012030

OPEN ACCESS

[On the physical significance of the Effective Independence method for sensor placement](#)

Yaoguang Jiang, Dongsheng Li and Gangbing Song.....275

Damage in Civil Engineering

012031

OPEN ACCESS

[Condition Assessment of Corrosion-damaged Bridge Girders Strengthened with Post-tensioned Composite Strips](#)

Yail J. Kim, Jae-Yoon Kang, Jong-Sup Park and Woo-Tai Jung.....286

012032

OPEN ACCESS

[Damage Detection Sensitivity of a Vehicle-based Bridge Health Monitoring System](#)

Ayaho Miyamoto, Akito Yabe and Valter J. G. Lucio.....293

012033

OPEN ACCESS

[Damage detection in multi-span beams based on the analysis of frequency changes](#)

G R Gillich, J L Ntakpe, M Abdel Wahab, Z I Praisach and M C Mimis.....305

012034

OPEN ACCESS

[Damage severity estimation from the global stiffness decrease](#)

C Nitescu, G R Gillich, M Abdel Wahab, T Manescu and Z I Korca.....317

012035

OPEN ACCESS

[Research of Ancient Architectures in Jin-Fen Area Based on GIS&BIM Technology](#)

Jing Jia, Qihong Zheng, Huiying Gao and Hai Sun.....328

012036

OPEN ACCESS

[Identification of Delamination in Concrete Slabs by SIBIE Procedure](#)

M. Yamada, Y. Yagi and M. Ohtsu.....337

012037

OPEN ACCESS

[Fatigue damage assessment of electric roads based on probabilistic load models](#)

R Ceravolo, G Miraglia and C Surace.....343

012038

OPEN ACCESS

[Energy dissipation and absorption capacity influence on experimental modal parameters of a PC girder](#)

O S Luna Vera, C W Kim and Y Oshima.....354

012039

OPEN ACCESS

[Developments in damage assessment by Marie Skłodowska-Curie TRUSS ITN project](#)

A González.....363

012040

OPEN ACCESS

[An anisotropic damage model for concrete structures under cyclic loading-uniaxial modeling](#)

Yuchuan Long and Yuming He.....380

Damage in Machineries

012041

OPEN ACCESS

[Fatigue Analysis of Proton Exchange Membrane Fuel Cell Stacks Based on Structural Stress Distribution](#)

C.W. Wu, B. Liu, M.Y. Wei and L.F. Liu.....394

012042

OPEN ACCESS

[Novel tool wear monitoring method in milling difficult-to-machine materials using cutting chip formation](#)

P P Zhang, Y Guo and B Wang.....401

012043

OPEN ACCESS

[Tuned Liquid Column Damper based Reduction of Dynamic Responses of Scaled Offshore Platforms in Different Ocean Wave Basins](#)

Deirdre O'Donnell, Jimmy Murphy, Cian Desmond, Vesna Jaksic and Vikram Pakrashi.....409

012044

OPEN ACCESS

[Potentials of Optical Damage Assessment Techniques in Automotive Crash-Concepts composed of FRP-Steel Hybrid Material Systems](#)

M Dlugosch, B Spiegelhalter, T Soot, D Lukaszewicz, J Fritsch and S Hiermaier.....417

012045

OPEN ACCESS

[Topic Correlation Analysis for Bearing Fault Diagnosis Under Variable Operating Conditions](#)

Chao Chen, Fei Shen and Ruqiang Yan.....429

012046

OPEN ACCESS

[Non-negative Matrix Factorization and Co-clustering: A Promising Tool for Multi-tasks Bearing Fault Diagnosis](#)

Fei Shen, Chao Chen and Ruqiang Yan.....438

012047

OPEN ACCESS

[A new damage diagnosis approach for NC machine tools based on hybrid Stationary subspace analysis](#)

Chen Gao, Yuqing Zhou and Yan Ren.....448

012048

OPEN ACCESS

[Study on quantitative risk assessment model of the third party damage for natural gas pipelines based on fuzzy comprehensive assessment](#)

Zeyang Qiu, Wei Liang, Xue Wang, Yang Lin and Meng Zhang.....455

012049

OPEN ACCESS

[Dependency of tensile strength of ductile cast iron on strain rate and temperature](#)

Tomohiro Ikeda, Takuo Umetani, Nobuhiro Kai, Keisaku Ogi, Nao-Aki Noda and Yoshikazu Sano.....466

012050

OPEN ACCESS

[Stress and deformation of ceramic rolls to produce high quality zinc coated steel sheet](#)

Hiromasa Sakai, Nao-Aki Noda, Yoshikazu Sano, Yasushi Takase and Guowei Zhang.....473

012051

OPEN ACCESS

[Coming out prevention by stopper for the shrink fitted sandwiched shaft from the ceramic sleeve](#)

Guowei Zhang, Nao-Aki Noda, Yoshikazu Sano, Hiromasa Sakai and Kazuhiro Oda.....481

012052

OPEN ACCESS

[Integrated condition monitoring of a fleet of offshore wind turbines with focus on acceleration streaming processing](#)

Jan Helsen, Nicoletta Gioia, Cédric Peeters and Pieter-Jan Jordaens.....487

012053

OPEN ACCESS

[Vibration-based angular speed estimation for multi-stage wind turbine gearboxes](#)

Cédric Peeters, Quentin Leclère, Jérôme Antoni, Patrick Guillaume and Jan Helsen.....494

012054

OPEN ACCESS

[Experimental investigations of contact-type damage nonlinearity](#)

A. Klepka, K. Dziejach, Ł. Pieczonka, M. Adamczyk and W.J. Staszewski.....502

012055

OPEN ACCESS

[Fault Features Extraction and Identification based Rolling Bearing Fault Diagnosis](#)

B Qin, G D SUN, L Y ZHANG, J G WANG and J HU.....511

012056

OPEN ACCESS

[Study on observation condition and on simple evaluation method of TypeIV creep damage of Mod.9Cr-1Mo steel](#)

F Kawashima, T Masumitsu, K Negi, K Watanabe and K Fujiwara.....524

012057

OPEN ACCESS

[Fault Diagnosis for Centre Wear Fault of Roll Grinder Based on a Resonance Demodulation Scheme](#)

Liming Wang, Yimin Shao, Lei Yin, Yilin Yuan and Jing Liu.....538

012058

OPEN ACCESS

[An illustration of new methods in machine condition monitoring, Part I: stochastic resonance](#)

K. Worden, I. Antoniadou, S. Marchesiello, C. Mba and L. Garibaldi.....545

012059

OPEN ACCESS

[An Illustration of New Methods in Machine Condition Monitoring, Part II: Adaptive outlier detection](#)

I. Antoniadou, K. Worden, S. Marchesiello, C. Mba and L. Garibaldi.....555

012060

OPEN ACCESS

[A new state evaluation method of oil pump unit based on AHP and FCE](#)

Yang Lin, Wei Liang, Zeyang Qiu, Meng Zhang and Wenqing Lu.....562

012061

OPEN ACCESS

[Numerical Simulation of cracked orthotropic materials using extended isogeometric analysis](#)

S H Habib, I Belaidi, S Khatir and M Abdel Wahab.....568

012062

OPEN ACCESS

[Development of four-point bending fatigue test method using continuously hydrogen-charging pipe specimen](#)

T Yoshimoto and T Matsuo.....579

012063

OPEN ACCESS

[Failure analysis of blots for diesel engine intercooler](#)

Ping Ren, Zongquan Li, Jiangfei Wu, Yibin Guo and Wanyou Li.....586

012064

OPEN ACCESS

[Application of Risk-Based Inspection method for gas compressor station](#)

Meng Zhang, Wei Liang, Zeyang Qiu and Yang Lin.....594

012065

OPEN ACCESS

[A new testing method for investigating the shear-mode fatigue crack growth behavior in hydrogen environment](#)

Y Akaki, T Matsuo, Y Nishimura, S Miyakawa and M Endo.....602

012066

OPEN ACCESS

[Improvement of torsional fatigue limit and rendering surface defect harmless by shot peening for spring steel](#)

K Takahashi, M Nakagawa, H Koike and H Okada.....608

012067

OPEN ACCESS

[Fatigue limit prediction of ferritic-pearlitic ductile cast iron considering stress ratio and notch size](#)

T Deguchi, H J Kim and T Ikeda.....617

012068

OPEN ACCESS

[Development of testing machine for tunnel inspection using multi-rotor UAV](#)

Tatsuya Iwamoto, Tomoya Enaka and Keijirou Tada.....625

012069

OPEN ACCESS

[Estimation of dispersion curves by combining Effective Elastic Constants and SAFE Method: A case study in a plate under stress](#)

J E Quiroga, L Mujica, R Villamizar, M Ruiz and J Camacho.....632

012070

OPEN ACCESS

[Impacting load control of floating supported friction plate and its experimental verification](#)

Keyan Ning, Yu Wang, Dingchuan Huang and Lei Yin.....642

012071

OPEN ACCESS

[Research on quality evaluation and forecast control in assembly process for complex products](#)

Jihong Pang, Xiaobo Xue, Yini Jin and Yongchao Li.....649

012072

OPEN ACCESS

[Damage evolution in plates subjected to fatigue loading](#)

J Toribio, J C Matos and B González.....655

012073

OPEN ACCESS

[Adhesive properties and adhesive joints strength of graphite/epoxy composites](#)

Anna Rudawska, Dana Stančková, Nadezda Cubonova, Tetiana Vitenko, Miroslav Müller and Petr Valášek.....661

Damage in Composite Materials

012074

OPEN ACCESS

[Experimental research and statistic analysis of polymer composite adhesive joints strength](#)

Anna Rudawska, Izabela Miturska, Jakub Szabelski, Agnieszka Skoczylas, Paweł Drożdziel, Elżbieta Bociąga, Radovan Madleňák and Dariusz Kasperek.....670

012075

OPEN ACCESS

[Impact localization on composite structures using time difference and MUSIC approach](#)

Yongteng Zhong and Jiawei Xiang.....678

012076

OPEN ACCESS

[Analysis of cracked RC beams under vibration](#)

R Capozucca and E Magagnini.....684

012077

OPEN ACCESS

[Micro CT Analysis of Dynamic Damage in Laminates: Impact vs. blast loading](#)

Laurence A Coles, Anish Roy and Vadim V Silberschmidt.....692

012078

OPEN ACCESS

[Evaluation of debonding strength of single lap joint by the intensity of singular stress field](#)

Tatsujiro Miyazaki and Nao-Aki Noda.....700

012079

OPEN ACCESS

[Detection of Fatigue Crack in Basalt FRP Laminate Composite Pipe using Electrical Potential Change Method](#)

Wael A. Altabey and Mohammed Noori.....708

012080

OPEN ACCESS

[A symplectic analytical singular element for the inclined crack terminating at the material interface of composite structures](#)

XF Hu, QS Shen and WA Yao.....720

012081

OPEN ACCESS

[Acoustic emission based damage localization in composites structures using Bayesian identification](#)

A Kundu, M J Eaton, S Al-Jumali, S Sikdar and R Pullin.....726

012082

OPEN ACCESS

[A Two-step Approach for Damage Identification in Axially Functionally Graded Beams](#)

Z.R. Lu, R.Z. Yao, J.K. Liu and M. Huang.....741

012083

OPEN ACCESS

[New damage-sensitive feature for structures with bolted joints](#)

W F Luo and L Yu.....750

012084

OPEN ACCESS

[Delamination detection in laminated composite using Virtual crack closure technique \(VCCT\) and modal flexibility based on dynamic analysis](#)

S Khatir, A Behtani, S Tiachacht, A Bouazouni, M Abdel Wahab and Y-L Zhou.....759

012085

OPEN ACCESS

[An isogeometric approach for size-dependent buckling analysis of FGM nanoplates](#)

P Phung-Van, M Abdel-Wahab and H Nguyen-Xuan.....768