

## Journal Publications of Gaetan KERSCHEN

### 2018 or in press

- (J-101) Bayesian model updating of nonlinear systems using nonlinear normal modes,  
M. Song, L. Renson, J.P. Noel, B. Moaveni, G. Kerschen,  
*Structural Control and Health Monitoring* in press.
- (J-100) Isolated resonances and nonlinear damping,  
G. Habib, G.I. Cirillo, G. Kerschen,  
*Nonlinear Dynamics* 93, 979-994 (2018).
- (J-99) A fully passive nonlinear piezoelectric vibration absorber,  
B. Lossouarn, J.F. Deu, G. Kerschen,  
*Philosophical Transactions of the Royal Society A* 376, 20170142 (2018).
- (J-98) Experimental study of isolas in nonlinear systems featuring modal interactions,  
T. Detroux, J.P. Noel, L.N. Virgin, G. Kerschen,  
*PLOS ONE* 13, e0194452 (2018).
- (J-97) Numerical computation of nonlinear normal modes in a modal derivative subspace,  
C. Sombroek, P. Tiso, L. Renson, G. Kerschen,  
*Computers and Structures* 195, 34-46 (2018).

### 2017

- (J-96) A robust equal-peak method for uncertain mechanical systems,  
L. Dell'Elce, E. Gourc, G. Kerschen,  
*Journal of Sound and Vibration* 414, 97-109 (2017).
- (J-95) Chatter mitigation using the nonlinear tuned vibration absorber,  
G. Habib, G. Kerschen, G. Stepan,  
*International Journal of Non-linear Mechanics* 91, 103-112 (2017).
- (J-94) Flutter control of a two-degree-of-freedom airfoil using a nonlinear tuned vibration absorber,  
A. Malher, C. Touzé, O. Doaré, G. Habib, G. Kerschen,  
*Journal of Computational and Nonlinear Dynamics* 12, 051016-1 (2017).
- (J-93) Model reduction and frequency residuals for a robust estimation of nonlinearities in subspace identification,  
G. De Filippis, J.P. Noel, G. Kerschen, L. Soria, C. Stephan,  
*Mechanical Systems and Signal Processing* 93, 312-331 (2017).
- (J-92) Finite element model reduction for space thermal analysis,  
L. Jacques, E. Bechet, G. Kerschen,  
*Finite Elements in Analysis and Design* 127, 6-15 (2017).

- (J-91) Analysis and design of nonlinear resonances using singularity theory,  
 I. Cirillo, G. Habib, G. Kerschen, R. Sepulchre,  
*Journal of Sound and Vibration* 392, 295-306 (2017).
- (J-90) Experimental passive flutter suppression using a linear tuned vibration absorber,  
 E. Verstraelen, G. Habib, G. Kerschen, G. Dimitriadis,  
*AIAA Journal* 55, 1707-1722 (2017).
- (J-89) First-order analytic propagation of satellites in the exponential atmosphere of an oblate planet,  
 V. Martinusi, L. Dell'Elce, G. Kerschen,  
*Celestial Mechanics and Dynamical Astronomy* 127, 451-476 (2017).
- (J-88) Editorial statement for the special issue "Recent advances in nonlinear system identification",  
 G. Kerschen, S. Braun,  
*Mechanical Systems and Signal Processing* 84, page 1 (2017).
- (J-87) A nonlinear state-space approach to hysteresis identification,  
 J.P. Noel, A.F. Esfahani, G. Kerschen, J. Schoukens,  
*Mechanical Systems and Signal Processing* 84, 171-184 (2017).
- (J-86) Tuning of a piezoelectric vibration absorber attached to a damped structure,  
 P. Soltani, G. Kerschen,  
*Journal of Intelligent Material Systems and Structures* 28, 1115-1129 (2017).
- (J-85) Nonlinear system identification in structural dynamics: 10 more years of progress,  
 J.P. Noel, G. Kerschen,  
*Mechanical Systems and Signal Processing* 83 (2017), 2-35.

## 2016

- (J-84) Passive linearization of nonlinear resonances,  
 G. Habib, C. Grappasonni, G. Kerschen,  
*Journal of Applied Physics* 120 (2016), 044901.
- (J-83) A principle of similarity for nonlinear vibration absorbers,  
 G. Habib, G. Kerschen,  
*Physica D* 332 (2016), 1-8.
- (J-82) A spectral characterization of nonlinear normal modes,  
 G.I. Cirillo, A. Mauroy, L. Renson, G. Kerschen, R. Sepulchre,  
*Journal of Sound and Vibration* 377 (2016), 284-301.
- (J-81) Identification of nonlinear normal modes of engineering structures under broadband forcing,  
 J.P. Noël, L. Renson, C. Grappasonni, G. Kerschen,  
*Mechanical Systems and Signal Processing* 74 (2016), 95-110.
- (J-80) Numerical computation of nonlinear normal modes in mechanical engineering,  
 L. Renson, G. Kerschen, B. Cochelin,  
*Journal of Sound and Vibration* 364 (2016), 177-206.

## 2015

- (J-79) Direction and surface sampling in ray tracing for spacecraft radiative heat transfer,  
L. Jacques, L. Masset, G. Kerschen,  
*Aerospace Science and Technology* 47 (2015), 146-153.
- (J-78) The harmonic balance method for bifurcation analysis of large-scale nonlinear mechanical systems,  
T. Detroux, L. Renson, L. Masset, G. Kerschen,  
*Computer Methods in Applied Mechanics and Engineering* 296 (2015), 18-38.
- (J-77) Analytic propagation of near-circular satellite orbits in the atmosphere of an oblate planet,  
V. Martinusi, L. Dell'Elce, G. Kerschen,  
*Celestial Mechanics and Dynamical Astronomy* 123 (2015), 85-103.
- (J-76) Nonlinear normal modes, modal interactions and isolated resonance curves,  
R. Kuether, L. Renson, T. Detroux, C. Grappasonni, G. Kerschen, M.S. Allen,  
*Journal of Sound and Vibration* 351 (2015), 299-310.
- (J-75) The nonlinear piezoelectric tuned vibration absorber,  
P. Soltani, G. Kerschen,  
*Smart Materials and Structures* 24 (2015), 075015.
- (J-74) Performance, robustness and sensitivity analysis of the nonlinear tuned vibration absorber,  
T. Detroux, G. Habib, L. Masset, G. Kerschen,  
*Mechanical Systems and Signal Processing* 60-61 (2015), 799-809.
- (J-73) Probabilistic assessment of the lifetime of low-Earth-orbit spacecraft: uncertainty propagation and sensitivity analysis,  
L. Dell'Elce, G. Kerschen,  
*Journal of Guidance, Control and Dynamics* 38 (2015), 886-899.
- (J-72) Probabilistic assessment of the lifetime of low-Earth-orbit spacecraft: uncertainty characterization,  
L. Dell'Elce, M. Arnst, G. Kerschen,  
*Journal of Guidance, Control and Dynamics* 38 (2015), 900-912.
- (J-71) Suppression of limit cycle oscillations using the nonlinear tuned vibration absorber,  
G. Habib, G. Kerschen,  
*Proceedings of the Royal Society of London A* 471, 20140976 (2015).
- (J-70) Optimal propellantless rendez-vous using differential drag,  
L. Dell'Elce, G. Kerschen,  
*Acta Astronautica* 109 (2015), 112-123.
- (J-69) Complex dynamics of a nonlinear aerospace structure: numerical continuation and normal modes,  
L. Renson, J.P. Noel, G. Kerschen,  
*Nonlinear Dynamics* 79 (2015), 1293-1309.

- (J-68) Nonlinear generalization of Den Hartog's equal peak method,  
G. Habib, T. Detroux, R. Viguié, G. Kerschen,  
*Mechanical Systems and Signal Processing* 52-53 (2015), 17-28.

## 2014

- (J-67) Piezoelectric vibration damping using resonant shunt circuits: an exact solution,  
P. Soltani, G. Kerschen, G. Tondreau, A. Deraemaeker,  
*Smart Materials and Structures* 23 (2014), 125014.
- (J-66) Grey-box identification of a nonlinear solar array structure using cubic splines,  
J.P. Noel, G. Kerschen, E. Foltete, S. Cogan,  
*International Journal of Non-linear Mechanics* 67 (2014), 106-119.
- (J-65) Complex dynamics of a nonlinear aerospace structure: experimental identification and modal interactions,  
J.P. Noel, L. Renson, G. Kerschen,  
*Journal of Sound and Vibration* 333 (2014), 2588-2607.
- (J-64) Classification of periodic orbits of two-dimensional homogeneous granular crystals with no pre-compression,  
T. Detroux, Y. Starosvetsky, G. Kerschen, A.F. Vakakis,  
*Nonlinear Dynamics* 76 (2014), 673-696.
- (J-63) An effective finite-element-based method for the computation of nonlinear normal modes of nonconservative systems,  
L. Renson, G. Deliége, G. Kerschen,  
*Meccanica*, 49 (2014), 1901-1916.
- (J-62) Subspace-based identification of a nonlinear spacecraft in the time and frequency domains,  
J.P. Noel, S. Marchesiello, G. Kerschen,  
*Mechanical Systems and Signal Processing* 43 (2014), 217-236.

## 2013

- (J-61) Frequency-domain subspace identification for nonlinear mechanical systems,  
J.P. Noel, G. Kerschen,  
*Mechanical Systems and Signal Processing* 40 (2013), 701-717.
- (J-60) Nonlinear modal analysis of a full-scale aircraft,  
G. Kerschen, M. Peeters, J.C. Golinval, C. Stephan,  
*AIAA Journal of Aircraft* 50 (2013), 1409-1419.
- (J-59) Vibration dynamics of vocal folds using nonlinear normal modes,  
A. Pinheiro, G. Kerschen,  
*Medical Engineering and Physics* 35 (2013), 1079-1088.

## 2012

- (J-58) Effective particles and classification of periodic orbits of homogeneous granular chains with no pre-compression,  
Y. Starosvetsky, K.R. Jayaprakash, A.F. Vakakis, G. Kerschen, L.I. Manevitch,  
*Physical Review E* 85 (2012), 036606.

## 2011

- (J-57) Detection and quantification of non-linear structural behavior using principal component analysis,  
A. Hot, G. Kerschen, E. Foltete, S. Cogan,  
*Mechanical Systems and Signal Processing* 26 (2011), 104-116.
- (J-56) Modal testing of nonlinear vibrating structures based on nonlinear normal modes: experimental demonstration,  
M. Peeters, G. Kerschen, J.C. Golinval,  
*Mechanical Systems and Signal Processing* 25 (2011), 1227-1247.
- (J-55) Dynamic testing of nonlinear vibrating structures using nonlinear normal modes,  
M. Peeters, G. Kerschen, J.C. Golinval,  
*Journal of Sound and Vibration* 330 (2011), 486-509.
- (J-54) Nonlinear normal modes and band zones in granular chains with no pre-compression,  
K.R. Jayaprakash, Y. Starosvetsky, A.F. Vakakis, M. Peeters, G. Kerschen,  
*Nonlinear Dynamics* 63 (2011) 359-385.

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- (J-53) On the functional form of a nonlinear vibration absorber,  
R. Viguié, G. Kerschen,  
*Journal of Sound and Vibration* 329 (2010), 5225-5232.
- (J-52) Dynamic analysis of the self-locking phenomenon in tape-spring hinges,  
S. Hoffait, O. Bruls, D. Granville, F. Cugnon, G. Kerschen,  
*Acta Astronautica* 66 (2010), 1125-1132.

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- (J-51) Nonlinear vibration absorber coupled to a nonlinear primary system: a tuning methodology,  
R. Viguié, G. Kerschen,  
*Journal of Sound and Vibration* 326 (2009), 780-793.
- (J-50) Energy transfer and dissipation in a Duffing oscillator coupled to a nonlinear attachment,  
R. Viguié, M. Peeters, G. Kerschen, J.C. Golinval,  
*Journal of Computational and Nonlinear Dynamics* 4 (2009), 041012.

- (J-49) Efficiency of TET in coupled oscillators with 1:1 resonance captures: Part II, analytical study, T. Sapsis, A.F. Vakakis, O.V. Gendelman, L.A. Bergman, G. Kerschen, D.D. Quinn, *Journal of Sound and Vibration* 325 (2009), 297-320.
- (J-48) Modal analysis of a nonlinear periodic structure with cyclic symmetry, F. Georgiades, M. Peeters, G. Kerschen, J.C. Golinval, M. Ruzzene, *AIAA Journal* 47 (2009), 1014-1025.
- (J-47) Nonlinear normal modes, Part II: Toward a practical computation using numer. continuation, M. Peeters, R. Viguié, G. Sérandour, G. Kerschen, J.C. Golinval, *Mechanical Systems and Signal Processing* 23 (2009), 195-216.
- (J-46) Nonlinear normal modes, Part I: A useful framework for the structural dynamicist, G. Kerschen, M. Peeters, J.C. Golinval, A.F. Vakakis, *Mechanical Systems and Signal Processing* 23 (2009), 170-194.
- (J-45) Using nonlinear targeted energy transfer to stabilize drill-string systems, R. Viguié, G. Kerschen, J.C. Golinval, D.M. McFarland, L.A. Bergman, et al. *Mechanical Systems and Signal Processing* 23 (2009), 148-169.

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- (J-44) Passive nonlinear TET and its applications to vibration absorption: a review, Y.S. Lee, A.F. Vakakis, L.A. Bergman, D.M. McFarland, G. Kerschen, et al. *Journal of Multi-Body Dynamics (IMechE - Part K)* 222 (2008), 77-134.
- (J-43) Enhancing robustness of aeroelastic instability suppression using MDOF energy sinks, Y.S. Lee, A.F. Vakakis, L.A. Bergman, D.M. McFarland, G. Kerschen, *AIAA Journal* 46 (2008), 1371-1394.
- (J-42) Efficiency of TET in coupled oscillators associated with 1:1 resonance captures: Part I, D.D. Quinn, O. Gendelman, G. Kerschen, S. Themistoklis, L.A. Bergman, A.F. Vakakis, *Journal of Sound and Vibration* 311 (2008), 2028-2048.
- (J-41) Impulsive periodic and quasi-periodic orbits in coupled oscillators with essential nonlinearity, G. Kerschen, O. Gendelman, A.F. Vakakis, L.A. Bergman, D.M. McFarland, *Communications in Nonlinear Science and Numerical Simulation* 13 (2008), 959-978.
- (J-40) Toward a fundamental understanding of the Hilbert-Huang Transform in nonlinear dynamics, G. Kerschen, A.F. Vakakis, Y.S. Lee, D.M. McFarland, L.A. Bergman, *Journal of Vibration and Control* 14 (2008), 77-105.

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- (J-39) Output-only modal analysis using blind source separation techniques, F. Poncelet, G. Kerschen, J.C. Golinval, D. Verhelst, *Mechanical Systems and Signal Processing* 21 (2007), 2335-2358.

- (J-38) Suppression of aeroelastic instability by means of broadband TET: Part II, experiments, Y.S. Lee, G. Kerschen, D.M. McFarland, W.J. Hill, C. Nichkawde, T.W. Strganac, et al. *AIAA Journal* 45 (2007), 2391-2400.
- (J-37) Suppression of aeroelastic instability by means of broadband passive TET: Part I, theory, Y.S. Lee, A.F. Vakakis, L.A. Bergman, D.M. McFarland, G. Kerschen, *AIAA Journal* 45 (2007), 693-711.
- (J-36) Targeted energy transfers in vibro-impact oscillators for seismic mitigation, F. Nucera, A.F. Vakakis, D.M. McFarland, L.A. Bergman, G. Kerschen, *Nonlinear Dynamics* 50 (2007), 651-677.
- (J-35) Physical interpretation of independent component analysis in structural dynamics, G. Kerschen, F. Poncelet, J.C. Golinval, *Mechanical Systems and Signal Processing* 21 (2007), 1561-1575.
- (J-34) Experimental demonstration of transient resonance capture in a system of two coupled oscillators with essential stiffness nonlinearity, G. Kerschen, D.M. McFarland, J.J. Kowtko, Y.S. Lee, L.A. Bergman, A.F. Vakakis, *Journal of Sound and Vibration* 299 (2007), 822-838.
- (J-33) Theoretical and exp. study of multimodal TET in a system of coupled oscillators, G. Kerschen, J.J. Kowtko, D.M. McFarland, L.A. Bergman, A.F. Vakakis, *Nonlinear Dynamics* 47 (2007), 285-309.
- (J-32) Complex dynamics and TET in linear oscillators coupled to MDOF nonlinear attachments, S. Tsakirtzis, P. Panagopoulos, G. Kerschen, O. Gendelman, A.F. Vakakis, L.A. Bergman, *Nonlinear Dynamics* 48 (2007) 285-318.
- (J-31) Broadband irreversible TET from a dispersive rod to a lightweight nonlinear attachment, F. Georgiades, A.F. Vakakis, G. Kerschen, *International Journal of Non-linear Mechanics* 42 (2007), 773-788.

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- (J-29) Past, present and future of nonlinear system identification in structural dynamics, G. Kerschen, K. Worden, A.F. Vakakis, J.C. Golinval, *Mechanical Systems and Signal Processing* 20 (2006), 505-592.

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- (J-28) Triggering mechanisms of limit cycle oscillations due to aeroelastic instability, Y.S. Lee, A.F. Vakakis, L.A. Bergman, D.M. McFarland, G. Kerschen, *Journal of Fluids and Structures* 21 (2005), 485-529.

- (J-27) Experimental investigation of TET in strongly and nonlinearly coupled oscillators, D.M. McFarland, G. Kerschen, J.J. Kowtko, Y.S. Lee, L.A. Bergman, A.F. Vakakis, *Journal of the Acoustical Society of America* 118 (2005), 791-799.
- (J-26) Complicated dynamics of a linear oscillator with an essentially nonlinear local attachment, Y.S. Lee, G. Kerschen, A.F. Vakakis, P. Panagopoulos, L.A. Bergman, D.M. McFarland, *Physica D* 204 (2005), 41-69.
- (J-25) Energy transfers in a system of two coupled oscillators with essential nonlinearity: 1:1 resonance manifold and transient bridging orbits, G. Kerschen, A.F. Vakakis, Y.S. Lee, D.M. McFarland, J.J. Kowtko, L.A. Bergman, *Nonlinear Dynamics* 42 (2005), 283-303.
- (J-24) Structural damage diagnosis under changing environmental conditions, Part II: local PCA, A.M. Yan, G. Kerschen, P. De Boe, J.C. Golinval, *Mechanical Systems and Signal Processing* 19 (2005), 865-880.
- (J-23) Structural damage diagnosis under changing environmental conditions, Part I: linear analysis, A.M. Yan, G. Kerschen, P. De Boe, J.C. Golinval, *Mechanical Systems and Signal Processing* 19 (2005), 847-864.
- (J-22) Multi-frequency nonlinear energy transfer from LO to MDOF nonlinear attachments, S. Tsakirtzis, G. Kerschen, P. Panagopoulos, A.F. Vakakis, *Journal of Sound and Vibration* 285 (2005), 483-490.
- (J-21) Sensor validation using principal component analysis, G. Kerschen, P. De Boe, J.C. Golinval, K. Worden, *Smart Materials and Structures* 14 (2005), 36-42.
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- (J-19) Transient dynamics of a dispersive wave guide with an essentially nonlinear end attachment, A.F. Vakakis, L.I. Manevitch, A.I. Musienko, G. Kerschen, L.A. Bergman, *Wave Motion* 41 (2005), 109-132.
- (J-18) Distortion function and clustering for local linear models, G. Kerschen, A.M. Yan, J.C. Golinval, *Journal of Sound and Vibration* 280 (2005), 443-448.
- (J-17) Generation of accurate models of nonlinear systems - Application to an aeroplane structure, G. Kerschen, J.C. Golinval, *Nonlinear Dynamics* 39 (2005), 129-142.

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- (J-16) Comments on 'Interpreting POMs of randomly excited linear vibration systems' , G. Kerschen, J.C. Golinval, *Journal of Sound and Vibration* 274 (2004), 1091-1092.

- (J-15) A model updating strategy of non-linear vibrating structures,  
G. Kerschen, J.C. Golinval,  
*International Journal for Numerical Methods in Engineering* 60 (2004), 2147-2164.
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G. Kerschen, J.C. Golinval,  
*Smart Materials and Structures* 13 (2004), 211-219.
- (J-13) Validation of two nonlinear system identification techniques using an experimental testbed,  
V. Lenaerts, G. Kerschen, J.C. Golinval, M. Ruzzene, E. Giorcelli,  
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- (J-12) Bayesian model screening for the identification of non-linear mechanical structures,  
G. Kerschen, J.C. Golinval, F.M. Hemez,  
*Journal of Vibration and Acoustics* 125 (2003), 389-397.
- (J-11) Identification of a continuous structure with a geometrical non-linearity, part II: POD,  
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- (J-10) Identification of a continuous structure with a geometrical non-linearity, part I: CRP,  
G. Kerschen, V. Lenaerts, J.C. Golinval,  
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G. Kerschen, B.F. Feeny, J.C. Golinval,  
*Computer Methods in Applied Mechanics and Engineering* 192 (2003), 1785-1795.
- (J-8) European COST action F3 on structural dynamics. Working group 3: identification of non-linear systems. Introduction and conclusions,  
J.C. Golinval, G. Kerschen, V. Lenaerts, F. Thouverez, P. Argoul,  
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- (J-7) ECL benchmark: Application of the proper orthogonal decomposition,  
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*Mechanical Systems and Signal Processing* 17 (2003), 237-242.
- (J-6) VTT benchmark: Application of the restoring force surface method,  
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*Mechanical Systems and Signal Processing* 17 (2003), 189-193.

## 2002

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G. Kerschen, J.C. Golinval,  
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G. Kerschen, J.C. Golinval,  
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