Curriculum vitae Matthias G.R. Faes

Personal data

Gender	Male
Nationality	Belgian
Date of birth, place	15.10.1991, Lier, Belgium
Address	Leonhard-Euler-Strasse 5, 44227 Dortmund
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Study

2013 - 2017 **Ph.D.** *Engineering Technology* - Defence of the dissertation: 27/11/2017
KU Leuven - Faculty of Mechanical Engineering
Title of the dissertation: "*Interval methods for the identification and quantification of inhomogeneous uncertainty in Finite Element models*"
Supervisor: Prof. Dr Ir. David Moens

2012 - 2013 **M.Sc.** Engineering Technology
Thomas More University of Applied Sciences - campus De Nayer
Title of the thesis: "*Extrusion based Additive Manufacturing of ceramic components*".
Supervisor: Prof. Dr Ir. Eleonora Ferraris (KU Leuven)
Grade: Summa cum Laude (86.7% - ECTS grade: "A")

2009 - 2012 **B.Sc.** Engineering Technology
Lessius University of Applied Sciences- campus De Nayer
Grade: Magna cum Laude (81.2% - ECTS grade: "A")

Professional career

Since 2022 Professor (W3) and Head of the Chair of Reliability Engineering, Faculty of Mechanical Engineering, Dortmund University of Technology, Germany.

Since 2022 Visiting Scientist, Faculty of Mechanical Engineering, KU Leuven, Leuven, Belgium.

2020 - 2022 Alexander von Humboldt Postdoctoral Fellow, Institute for Risk and Reliability (Mentor: Prof Michael Beer), Leibniz Universität Hannover (Hannover, Germany).

2017 - 2022 Postdoctoral researcher at the Faculty of Mechanical Engineering at KU Leuven (Leuven, Belgium). Personal postdoctoral fellowship from the Flemish Research Foundation (FWO) between 2019 and 2022. Mentor: Prof David Moens.

2017 Visiting scientist, Institute for Risk and Reliability, Leibniz University Hannover (Hannover, Germany). Mentor: Prof Michael Beer.

2013 - 2017 Research Assistant, Faculty of Mechanical Engineering, KU Leuven (Leuven, Belgium)

Involvement in the professional community

Editorial activities

Since 2023 Associate Editor, *ASCE Practice Periodical on Structural Design and Construction.*

Since 2022 Associate Managing Editor and Associate editor, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering (IF: 2.5) and Part B: Mechanical Engineering (IF: 2.2)*

Since 2021 Associate editor, *Mechanical Systems and Signal Processing (IF: 8.4*)

Since 2021 Associate editor, *ASME Open Journal of Engineering*.

Since 2021 Guest editor of two special issues (SI 042B and SI 055B) of the ASCE/ASME Journal of Risk and Uncertainty in Engineering systems part B: Mechanical Engineering, with a total of over 20 high-quality contributions.

2020 - 2022 Member of the Early Career Editorial Board, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*.

Conference organisation

Since 2017	15+ mini-symposia (15+) at leading international conferences such as ICASP (2013, 2014), UNCECOMP (2017, 2019, 2021, 2023), APSSRA2020, ICOSSAR2021, WCCM-APCOM (2022), WCCM-ECCOMAS (2020,2024), ISRERM (2022, 2024), and ICVRAM (2024); 20+ international co-organisers, more than 100 contributions.

Expert activities

Since 2022	Project proposals from the Alexander von Humboldt Foundation, Czech Science Foundation (GACR)
Since 2017	100+ journal articles (e.g. *Mechanical Systems and Signal Processing, ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part A & B, Computers and Structures, Computer Methods in Applied Mechanics and Engineering, Probabilistic Engineering Mechanics*)
Since 2017	100+ conference papers at leading conferences (e.g. UNCECOMP, ICASP, REC, ICOSSAR, ESREL, etc.)

Academic self-administration

Since 2023	Member of the Doctoral Committee, Faculty of Mechanical Engineering, TU Dortmund University
Since 2023	Member of the *Studienbeirat* at the Faculty of Mechanical Engineering, TU Dortmund University
2023	Member of the tenure evaluation committee at Tsinghua University, PR China.
Since 2022	Member of the Faculty Council of Mechanical Engineering, TU Dortmund University
2017 – 2019	Master Thesis Coordinator at the Faculty of Engineering Technology of the KU Leuven

Memberships (selection)

Specialized societies and committees

2025	Scientific committee member | *6th International Conference UNCECOMP*, Athens, Greece
2024	Member of the International Scientific Committee | *4th International Conference on Vulnerability and Risk Analysis and Management (ICVRAM2024)* & *8th International Symposium on Uncertainty Modelling and Analysis (ISUMA2024)*, Shanghai, PR China
2024	Member of the scientific committee of the *International Conference on Noise and vibration Engineering (ISMA-USD2024)*, Leuven, Belgium
2024	Member of the *International Technical Committee of the International Symposium on Reliability Engineering and Risk Management (ISRERM)* 2024, Hefei, PR. China
Since 2023	Executive board member of the *European Society for Structural Dynamics*
Since 2023	Co-chair of the Technical Committee of the *"Mathematical and Computational Methods in Reliability and Safety"* Committee of the ESRA
Since 2023	Board member of the *European Association for Structural Dynamics* (EASD)
2023	Member of the Programme Committee of the *13th International Symposium on Imprecise Probabilities: Theories and Applications (ISIPTA)*, Oviedo, Spain
2023	Scientific Member of the Committee | *5th International Conference on Uncertainty Quantification in Computational Science and Engineering* (UNCECOMP), Athens, Greece
2023	Member of the International Technical Committee *of the International Workshop on Engineering Reliability and Stochastic Mechanics (IWERSM 2023)*, Shanghai, PR China
Since 2022	Chairman of the Awards Committee of the *European Safety and Reliability Association* (ESRA)
2022	International Technical Committee Chair of the *International Symposium on Reliability Engineering and Risk Management (ISRERM)* 2022, Hanover, Germany
Since 2021	Member of the American Society of Mechanical Engineers (ASME)
Since 2021	Member of the ASCE *Risk and Resilience Measurements Committee*
Since 2021	Voting member of the award committee for the Best Paper Award of the *ASCE/ASME Journal for Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*
Since 2020	Member of the American Society of Civil Engineers (ASCE)
Since 2020	Member of the *ASCE Engineering Mechanics Institute*

Supervisory activities

Postdoctoral researchers

Since 2024	Dr Chao Dang,	TU Dortmund, main supervisor
Since 2023	Dr Peipei Li,	TU Dortmund (Humboldt Fellow), main supervisor
Since 2023	Dr Xuan-Yi Yuan,	TU Dortmund (Humboldt Fellow), main supervisor

Doctoral candidates

Since 2024	MSc. Cristobal Acevedo,	TU Dortmund, main supervisor
Since 2023	MSc. Xiang-Wei Li,	TU Dortmund (CSC scholarship holder), main supervisor
Since 2023	MSc. Ali Kilicsoy,	TU Dortmund, main supervisor
Since 2022	MSc. Nataly Manque Roa,	TU Dortmund, main supervisor
Since 2022	MSc. Mauricio Misraji,	TU Dortmund, main supervisor
Since 2021	MSc. Bouwe Verkens,	KU Leuven, Co-supervisor
Since 2021	MSc. Miriam Dodt,	KU Leuven, Co-supervisor
Since 2021	MSc. Damien Bonnet-Eymard,	KU Leuven, Co-supervisor
Since 2020	MSc. Konstantinos Ypstilantis,	KU Leuven, Co-supervisor
Since 2019	MSc. Robin Callens,	KU Leuven, Co-supervisor
Since 2018	MSc. Lars Bogaerts,	KU Leuven, Co-supervisor
2018 - 2023	MSc. Conradus van Mierlo,	KU Leuven, Co-supervisor

Awards and honours

2023	*EASD Junior Research Prize in the Area of Development of Methodologies for Structural Dynamics*. European Association of Structural Dynamics, Delft, Netherlands.
2022	"Top Cited" article in the "*International Journal for Numerical Methods in* Engineering"
2020	Alexander von Humboldt Postdoctoral Fellowship, Alexander von Humboldt Foundation
2020	Willy Asselman Prize in recognition of research achievements in the field of quantification of uncertainties for technical analyses, KU Leuven, Belgium.
2020	Award for the best contribution at the "*Asian Pacific Symposium on Structural Reliability and its Applications*" in collaboration with Dr Marco Daub and Prof Michael Beer.
2019	*IJAR Young researcher award for research excellence in imprecise probabilities*. Elsevier & The Society for Imprecise Probability: Theories and Applications, Ghent, Belgium.
2018	*ECCOMAS Award for the Best Ph.D. Theses Of 2017 in Europe on Computational Methods in Applied Sciences and Engineering*, European Committee on Computational Methods in Applied Sciences (ECCOMAS), Glasgow, United Kingdom.
2018	2nd laureate of the BNCTAM Prize for the best doctoral thesis of 2017 in applied or theoretical mechanics, awarded by the Belgian National Committee for Theoretical and Applied Mechanics, Brussels, Belgium.
2016	Excellent Paper Award - CIRP ISEM18 Conference, awarded by the International Academy of Production Engineering, Tokyo, Japan
2009	Best student in natural sciences, St-Gummarus-College, Lier, Belgium.

Projects and grants acquired

Prof Faes has received grants and projects totaling over 6,454,111 euros since his doctorate in 2017 (not including Humboldt fellowships received, for example). These grants were acquired in the Belgian, German and European research system as PI and Co-PI.

Projects

2023	German Research Foundation (DFG), Grant in kind: DFG FA 2004/3-1	351,324 Euro	PI
2023	German Research Foundation (DFG), Grant in kind: DFG FA 2004/2-1	324,118 Euro	PI
2023	Flat-rate funds in the SFB - TRR 188, Support for uncertainty quantification	96,600 euros	PI
2022	Alexander von Humboldt Foundation, Henriette-Herz Scouting Programme for Postdocs	up to 3x24 months	PI
2021	KU Leuven Internal financing C2	629,000 euros	Co-PI

2020	European Commission - H2020, H2020-MSCA- European Training Network "GREYDIENT: Grey-Box Models for Safe and Reliable Intelligent Mobility Systems".	3,938,269 Euro	Coordinator
2017	Stichting De Nayer, Hardware financing project	68,000 euros	Co-PI

Scholarships as a (co-)supervisor

2023	Chinese Scholarship Council (CSC), Doctoral scholarship for Xiang-Wei Li	12 months	PI
2023	Chinese Scholarship Council (CSC), Doctoral scholarship for Hui-Juan Liu	12 months	PI
2022	VLAIO (Belgium), Baekelandt scholarship in collaboration with Covess NV	353,821 Euro	Co-PI
2022	Flemish Research Foundation (FWO), Research fellowship (FWO-SB - 48 months) for Bouwe Verkens	ca.200.000 Euro	Co-PI
2022	Humboldt Foundation, Research grant for Dr Alice Cicirello, in collaboration with the Institute for Risk and Reliability at the University of Hanover		Co-PI
2020	Flemish Research Foundation (FWO), Research fellowship (FWO-SB 48 months) for Robin Callens	ca.200.000 Euro	Co-PI
2020	Flemish Research Foundation (FWO), Research fellowship (FWO-SB 48 months) for Konstantinos. I. Ypsilantis	ca.200.000 Euro	Co-PI
2018	Flemish Research Foundation (FWO), Research fellowship (FWO-SB 48 months) for Conradus Van Mierlo	ca.200.000 Euro	Co-PI

Scholarships as an applicant

2020	Humboldt Foundation, Fully paid scholarship for a stay at the Institute for Risk and Reliability, Leibniz Universität Hannover	12 months	Applicant
2018	Flemish Research Foundation (FWO), Fully paid three-year postdoctoral research fellowship	267,000 euros	Applicant
2017	Flemish Research Foundation (FWO), Scholarship for a 3-month stay abroad at the Institute for Risk and Reliability, Leibniz Universität Hannover	approx. 2500 Euro	Applicant

Keynotes and invited guest lectures

2024	Guest seminar (online) | Sanjivani K.P.B. University, India. Invited by Prof. M. Gawali.
2023	Keynote | 5th Sheffield Workshop on Structural Dynamics, Sheffield, United Kingdom.
2023	Guest seminar | Tongji University, Shanghai, PR China. Invited by Prof Jianbing Chen and Prof Yongbo Peng.
2023	Guest Seminar | Beijing University of Science and Technology, Beijing, PR China. Invited by Prof Lechang Yang.
2023	Invited speaker | SIPTA seminar series "*What's going on in...*". Invited by Prof Jasper De Bock (University of Ghent).
2022	Invited Speaker | SPP 1886 *Workshop on Interactions and Multi-Physical Behaviour Considering Uncertain Data* at the Karlsruhe Institute of Technology. Invited by Prof Steffen Freitag.
2021	Guest lecturer (2 lectures) | 1st network-wide event GREYDIENT MSCA Network
2021	Guest Lecturer (2 lectures) | Virtual Winter School of the SPP1886. Invited by Prof Michael Kaliske.
	2021Guest Seminar | University of Sheffield, United Kingdom. Invited by Prof K. Worden.
2020	Invited speaker | *1st Sino-German workshop on Reliability of Complex Systems*. Invited by Prof Pengfei Wei (Nortwestern Polytechnic University, X'ian).
2020	Guest seminar | University Federico Santa Maria in Valparaiso, Chile. Invited by Prof Hector Jensen

2019 Guest seminar | Leibniz University Hannover, DE. Invited by Prof. Udo Nackenhorst.
2019 Keynote (Mini-Symposium) | UNCECOMP3, Crete, Greece
2018 Guest seminar | TU Munich, Germany. Invited by Prof Fabian Duddeck.
2016 *Special Focus Talk* |ICEM18, Tokyo, Japan. Invited talk as part of the *Excellent Paper Award*.

Publications

Since 2016, Prof Faes has published >70 publications in international peer-reviewed journals, 3 book chapters and >70 conference proceedings; 1100+ citations; H-index 18 (Scopus);

Link to profiles: ORCID; Google Scholar

Scientific journal articles

1. Dang, C., Cicirello, A., Valdebenito, M., Faes, M., Wei, P., and Beer, M. "Structural reliability analysis with extremely small failure probabilities: A quasi-Bayesian active learning method," Probabilistic Engineering Mechanics, 2024, *Article in Press*.
2. Dang, C., **Faes, M.,** Valdebenito, M., Wei, P., Beer, M. (2024). Partially Bayesian active learning cubature for structural reliability analysis with extremely small failure probabilities. *Computer Methods in Applied Mechanics and Engineering.* Volume 422, 15 March 2024, 116828. 10.1016/j.cma.2024.116828
3. Chang, Q., Zhou, C., **Faes, M.**, Valdebenito, M. (2024). Design optimisation with variable screening by interval-based sensitivity analysis. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*. *Article in Press.*
4. Acevedo, C., Valdebenito, M., Gonzalez, I., Jensen, H., **Faes, M.,** Liu Y. (2024). Control Variates with Splitting for Aggregating Results of Monte Carlo Simulation and Perturbation Analysis. *Structural Safety.* Volume 108, May 2024, 102445. 10.1016/j.strusafe.2024.102445.
5. Wang, C., Beer, M., **Faes, M.**, Feng, D. (2024). Resilience assessment under imprecise probability. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*. *Article in press.*
6. Yuan, X., Zheng, W., Zhao, C., Valdebenito, M., **Faes, M.,** Dong, Y. (2024). Line sampling for time-variant failure probability estimation using adaptive combination approach. *Reliability Engineering and System Safety*. Volume 243, March 2024, 109885. 10.1016/j.ress.2023.109885
7. Jerez, D. Fragkoulis, V., Ni, P., Mitseas, I., Valdebenito, M., **Faes, M.,** Beer, M. (2024). Operator norm-based determination of failure probability of nonlinear oscillators with fractional derivative elements subject to imprecise stationary Gaussian loads. *Mechanical Systems and Signal Processing*. Volume 208, 15 February 2024, 111043. 10.1016/j.ymssp.2023.111043
8. Abdollahi, A., Shahraki, H., **Faes, M.,** Rashki, M. (2024). Soft Monte Carlo Simulation for imprecise probability estimation: A dimension reduction-based approach, *Structural Safety*. Volume 106, January 2024, 102391. 10.1016/j.strusafe.2023.102391
9. Böddecker, M., **Faes, M.,** Menzel, A., Valdebenito, M. (2023). Effect of uncertainty of material parameters on stress triaxiality and lode angle in finite elasto-plasticity - a variance-based global sensitivity analysis. *Advances in Industrial and Manufacturing Engineering*. Volume 7, November 2023, 100128. 10.1016/j.aime.2023.100128
10. Hong, F., Wei, P., Song, J., Valdebenito, M.A., **Faes, M.,** Beer, M. (2023). Collaborative and Adaptive Bayesian Optimisation for Bounding Variances and Probabilities under Hybrid Uncertainties. *Computer Methods in Applied Mechanics and Engineering*. Volume 417, Part A, December 2023, 116410. 10.1016/j.cma.2023.116410
11. Ypsilantis, K., Kazakis, G., **Faes, M.**, Ivens, J., Lagaros, N. Moens, D. (2023). A topology-based in-plane filtering technique for the combined topology and discrete fibre orientation optimization. *Computer Methods in Applied Mechanics and Engineering*. Volume 417, Part A, 1 December 2023, 116400. 10.1016/j.cma.2023.116400
12. Van Bavel, B., Zhao, Y., **Faes, M.,** Vandepitte, D., Moens, D. (2023). Efficient quantification of composite spatial variability: A multiscale framework that captures intercorrelation. *Composite Structures*. Volume 323, 1 November 2023, 117462 10.1016/j.compstruct.2023.117462
13. Valdebenito, M., Yuan, X., **Faes, M.** (2023). Augmented First-Order Reliability Method for Estimating Fuzzy Failure Probabilities. *Structural Safety*. *Volume 73, July 2023, 103474. 10.1016/j.probengmech.2023.103474*

14. Hong, F., Wei, P., Song, J., **Faes, M.**, Valdebenito, M., Beer, M. (2023). Combining Data and Physical Models for Probabilistic Analysis: A Bayesian Augmented Space Learning Perspective. *Probabilistic Engineering Mechanics.* Volume 73, July 2023, 103474. 10.1016/j.probengmech.2023.103474
15. Dang, C., Valdebenito, M., **Faes, M.**, Song, J., Wei, P., Beer, M. (2023). Structural reliability analysis by line sampling: A Bayesian active learning treatment. *Structural Safety*. Volume 104, September 2023, 102351. 10.1016/j.strusafe.2023.102351
16. Bogaerts, L., Dejans, A., **Faes, M.**, Moens, D. (2023). A machine learning approach for efficient and robust resistance spot welding monitoring. *Welding in the World*. Volume 67, pages 1923-1935. 10.1007/s40194-023-01519-1.
17. Rashki, M., **Faes, M.** (2023). No-Free-Lunch theorems for reliability analysis. *ASCE/ASME Journal for Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering.* Vol. 9, Issue 3, September 2023, 10.1061/AJRUA6.RUENG-1015
18. van Mierlo, C., Persoons, A., **Faes, M.,** Moens, D. (2023). Robust design optimisation of expensive stochastic simulators under lack-of-knowledge. *ASCE/ASME Journal for Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*. Volume 9(2), 021205. 10.1115/1.4056950.
19. Yuan, X., Valdebenito, M.A., Zhang, B., **Faes, M.,** Beer, M. (2023). Efficient decoupling approach for reliability-based optimization based on augmented Line Sampling and combination algorithm. *Computers & Structures*. Volume 280, May 2023, 107003. 10.1016/j.compstruc.2023.107003
20. Behrendt, M., **Faes, M.,** Valdebenito, M.A., Beer, M. (2023). Estimation of an imprecise power spectral density function with optimised bounds from scarce data for epistemic uncertainty quantification. *Mechanical Systems and Signal Processing*. Volume 189, 15 April 2023, 110072. 10.1016/j.ymssp.2022.110072
21. Yuan, X., Wang, S., Valdebenito, M.A., **Faes, M.**, Beer, M. (2023). Sample regeneration algorithm for structural failure probability function estimation. Probabilistic Engineering Mechanics. 103387. 10.1016/j.probengmech.2022.103387
22. Yuan, X., Qian, Y. Chen, J. **Faes, M.,** Valdebenito, M., Beer, M. (2023). Global failure probability function estimation based on an adaptive strategy and combination algorithm. *Reliability Engineering and System Safety. Volume 231, March 2023, 108937 10.1016/j.ress.2022.108937*
23. Fina, M., Lauff, C., **Faes, M.,** Valdebenito, M., Wagner, W., Freitag. S. (2022). Bounding Imprecise Failure Probabilities in Structural Mechanics based on Maximum Standard Deviation. *Structural Safety*. Volume 101, March 2023, 102293
24. Feng, C., **Faes, M.,** Broggi, M., Dang, C., Yang, K., Zheng, Z., Beer, M. (2022). Application of interval field method to the stability analysis of slopes in presence of uncertainties. *Computers & Geotechnics*. Volume 153, January 2023, 105060. 10.1016/j.compgeo.2022.10506
25. Van Mierlo, C., Persoons, A., **Faes, M.,** Moens, D. (2022). Robust design optimisation under lack-of-knowledge uncertainty. *Computers & Structures. Volume 275, 15 January 2023, 106910*
26. Ding, C., Dang, C., Valdebenito, M., **Faes, M.**, Broggi, M., Beer,M. (2022). First-passage probability estimation of high-dimensional nonlinear stochastic dynamic systems by a fractional moments-based mixture distribution approach. *Mechanical Systems and Signal Processing*. Volume 185, 15 February 2023, 109775. 10.1016/j.ymssp.2022.109775
27. Bartsoen, L., **Faes, M.**, Wirix-Speetjens, R., Moens, D., Jonkers, I., Vander Sloten, J. (2022). Probabilistic planning for ligament-balanced TKA - identification of critical ligament properties. *Frontiers in Bioengineering and Biotechnology.* Vol. 17, November 2022,
28. Bartsoen, L., **Faes, M.**, Skipper Andersen, M., Wirix-Speetjens, R., Moens, D., Jonkers, I., Vander Sloten, J. (2023). Bayesian parameter estimation of ligament properties based on tibio-femoral kinematics during squatting. *Mechanical Systems and Signal Processing,* Volume 182, 1 January 2023, 109525. 10.1016/j.ymssp.2022.109525
29. Dang, C., Valdebenito, M., **Faes, M.,** Wei, P., Beer, M. (2022). Structural Reliability Analysis, a Bayesian perspective. *Structural Safety,* https://www.sciencedirect.com/journal/structural-safety/vol/99/suppl/C, November 2022, 102259.
30. Wang, G., **Faes, M.**, Shi, T., Peng, G. (2022). Extension of Dashpot Model with Elastoplastic Deformation and Rough Surface in Impact Behaviour, *Chaos, Solitons and Fractals Volume 162, September 2022, 112402*. 10.1016/j.chaos.2022.112402
31. Dang, C., Wei, P., **Faes, M.**, Beer, M. (2022). Bayesian probabilistic propagation of hybrid uncertainties: Estimation of response expectation function, its variable importance and bounds, *Computers & Structures,* Volume 270, 1 October 2022, 106860. 10.1016/j.compstruc.2022.106860
32. Ypsilantis, K.I., **Faes, M.**, Ivens, J., Laragos, N., Moens, D. (2022). An Approach for the Concurrent Homogenisation-based Microstructure Type and Topology Optimization Problem, *Computers & Structures,* Volume 272, November 2022, 106859. 10.1016/j.compstruc.2022.106859

33. Dang, C., Wei, P., **Faes, M.**, Valdebenito, M. A., Beer, M. (2022). Parallel adaptive Bayesian quadrature for rare event estimation, *Reliability Engineering and System Safety*, Volume 225, September 2022, 108621. 10.1016/j.ress.2022.108621
34. Zhao, Y., Yang, J., **Faes, M.,** Bi, S., Wang, Y. (2022). The sub-interval similarity: A general uncertainty quantification metric for both stochastic and interval model updating, *Mechanical Systems and Signal Processing*, Volume 178, October 2022, 109319, 10.1016/j.ymssp.2022.109319
35. **Faes, M.,** Broggi, M., Chen, G., Phoon, K.-K., Beer, M. (2022). Distribution-free P-box processes based on translation theory: definition and simulation. *Probabilistic Engineering Mechanics, forthcoming publication.* Volume 69, July 2022, 103287, 10.1016/j.probengmech.2022.103287
36. **Faes, M.,** Broggi, M., Spanos, P.D., Beer, M. (2022). Elucidating appealing features of differentiable auto-correlation functions: a study on the modified exponential kernel. *Probabilistic Engineering Mechanics,* Volume 69, July 2022, 103269, 10.1016/j.probengmech.2022.103269
37. Dang, C., Wei, P., **Faes, M.,** Valdebenito, M., Beer, M. (2022). Interval uncertainty propagation by a parallel Bayesian global optimisation method. *Applied Mathematical Modelling,* Volume 108, August 2022, Pages 220-235 10.1016/j.apm.2022.03.031
38. Callens, R., **Faes, M.**, Moens, D. (2021). Multilevel Quasi-Monte Carlo For Interval Analysis. *International Journal For Uncertainty Quantification*, *Issue 12(4). pp. 1-19*. doi: 10.1615/Int.J.UncertaintyQuantification.2022039245
39. Ni, P., Jerez, D., **Faes, M.**, Fragkoulis, V., Valdebenito, M., Beer, M. (2021). Operator Norm-based Statistical Linearisation to Bound the First Excursion Probability of Nonlinear Structures Subjected to Imprecise Stochastic Loading. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part A-Civil Engineering, 8(1).* 04021086. doi: 10.1061/AJRUA6.0001217
40. van Mierlo, C., Burmberger, L., Daub, M., Duddeck, F., **Faes, M.G R.,** Moens, D. (2021). Interval methods for lack-of-knowledge uncertainty in crash analysis. *Mechanical Systems And Signal Processing,* Art.No. 108574. https://doi.org/10.1016/j.ymssp.2021.108574
41. Song, J., Wei, P., Valdebenito, M., **Faes, M.,** Beer, M. (2022). Data-driven and Active Learning of Variance-based Sensitivity Indices with Bayesian Probabilistic Integration. *Mechanical Systems And Signal Processing*, Art.No. 108106. doi: 10.1016/j.ymssp.2021.108106
42. Yang, L., Bi, S., **Faes, M.**, Broggi, M., Beer, M. (2022). Bayesian inversion for imprecise probabilistic models using a novel entropybased uncertainty quantification metric. *Mechanical Systems And Signal Processing*, *162*, Art.No. 107954. doi: 10.1016/j.ymssp.2021.107954
43. **Faes, M.,** Daub, M., Marelli, S., Patelli, E., Beer, M. (2021). Engineering analysis with probability boxes: a review on computational methods. *Structural Safety*, Art.No. 102092. doi: 10.1016/j.strusafe.2021.102092
44. Bartsoen, L**., Faes, M.G R**., Wesseling, M., Wirix-Speetjens, R., Moens, D., Jonkers, I., Vander Sloten, J. with Bartsoen, L. (corresp. author) (2021). Computationally efficient optimization method to quantify the required surgical accuracy for a ligament balanced TKA. *IEEE Transactions On Biomedical Engineering*, *68* (11), 3273-3280. doi: 10.1109/TBME.2021.3069330
45. Yuan, X., Liu, S., **Faes, M.,** Valdebenito, M., Beer, M. (2021). An efficient importance sampling approach for reliability analysis of time-variant structures subject to time-dependent stochastic load. *Mechanical Systems and Signal Processing*, *159*, Art.No. 107699. doi: 10.1016/j.ymssp.2021.107699
46. **Faes, M.**, Valdebenito, M. (2021). Fully Decoupled Reliability-Based Optimisation of Linear Structures Subject to Gaussian Dynamic Loading Considering Discrete Design Variables. *Mechanical Systems and Signal Processing*, *156*, Art.No. 107616. doi: 10.1016/j.ymssp.2021.107616
47. Yuan, X., Liu, S., Valdebenito, M.A., **Faes, M.**, Jerez, D.J., Jensen, H.A., Beer, M. (2021). Decoupled reliability-based optimisation using Markov chain Monte Carlo in augmented space. *Advances In Engineering Software*, *157*, Art.No. ARTN 103020. doi: 10.1016/j.advengsoft.2021.103020
48. Yuan, X., **Faes, M.**, Liu, S., Valdebenito, M., Beer, M. (2021). Efficient imprecise reliability analysis using the Augmented Space Integral. *Reliability Engineering & System Safety*, *210*, Art.No. 107477. doi: 10.1016/j.ress.2021.107477
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