

James L Beck

List of Publications by Year in descending order

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109
papers

8,892
citations

61857

43
h-index

42291

92
g-index

111
all docs

111
docs citations

111
times ranked

3992
citing authors

#	ARTICLE	IF	CITATIONS
1	Estimation of small failure probabilities in high dimensions by subset simulation. Probabilistic Engineering Mechanics, 2001, 16, 263-277.	1.3	1,722
2	Bayesian Updating of Structural Models and Reliability using Markov Chain Monte Carlo Simulation. Journal of Engineering Mechanics - ASCE, 2002, 128, 380-391.	1.6	645
3	Model Selection Using Response Measurements: Bayesian Probabilistic Approach. Journal of Engineering Mechanics - ASCE, 2004, 130, 192-203.	1.6	490
4	Bayesian system identification based on probability logic. Structural Control and Health Monitoring, 2010, 17, 825-847.	1.9	470
5	Evaluation of the seismic performance of a code-conforming reinforced-concrete frame building from seismic hazard to collapse safety and economic losses. Earthquake Engineering and Structural Dynamics, 2007, 36, 1973-1997.	2.5	317
6	Entropy-Based Optimal Sensor Location for Structural Model Updating. JVC/Journal of Vibration and Control, 2000, 6, 781-800.	1.5	276
7	Bayesian Model Updating Using Hybrid Monte Carlo Simulation with Application to Structural Dynamic Models with Many Uncertain Parameters. Journal of Engineering Mechanics - ASCE, 2009, 135, 243-255.	1.6	246
8	Bayesian Updating and Model Class Selection for Hysteretic Structural Models Using Stochastic Simulation. JVC/Journal of Vibration and Control, 2008, 14, 7-34.	1.5	230
9	Sensitivity of Building Loss Estimates to Major Uncertain Variables. Earthquake Spectra, 2002, 18, 719-743.	1.6	210
10	Bayesian state and parameter estimation of uncertain dynamical systems. Probabilistic Engineering Mechanics, 2006, 21, 81-96.	1.3	195
11	Structural identification using linear models and earthquake records. Earthquake Engineering and Structural Dynamics, 1980, 8, 145-160.	2.5	178
12	Efficient model updating and health monitoring methodology using incomplete modal data without mode matching. Structural Control and Health Monitoring, 2006, 13, 91-107.	1.9	161
13	Bayesian post-processor and other enhancements of Subset Simulation for estimating failure probabilities in high dimensions. Computers and Structures, 2012, 92-93, 283-296.	2.4	148
14	Calculation of Posterior Probabilities for Bayesian Model Class Assessment and Averaging from Posterior Samples Based on Dynamic System Data. Computer-Aided Civil and Infrastructure Engineering, 2010, 25, 304-321.	6.3	130
15	Accounting for prediction uncertainty when inferring subsurface fault slip. Geophysical Journal International, 2014, 197, 464-482.	1.0	128
16	Structural Model Updating and Health Monitoring with Incomplete Modal Data Using Gibbs Sampler. Computer-Aided Civil and Infrastructure Engineering, 2006, 21, 242-257.	6.3	123
17	Monitoring Structural Health Using a Probabilistic Measure. Computer-Aided Civil and Infrastructure Engineering, 2001, 16, 1-11.	6.3	114
18	An efficient framework for optimal robust stochastic system design using stochastic simulation. Computer Methods in Applied Mechanics and Engineering, 2008, 198, 88-101.	3.4	113

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19	Two-Stage Structural Health Monitoring Approach for Phase I Benchmark Studies. Journal of Engineering Mechanics - ASCE, 2004, 130, 16-33.	1.6	109
20	Structural Health Monitoring via Measured Ritz Vectors Utilizing Artificial Neural Networks. Computer-Aided Civil and Infrastructure Engineering, 2006, 21, 232-241.	6.3	108
21	Robust Bayesian Compressive Sensing for Signals in Structural Health Monitoring. Computer-Aided Civil and Infrastructure Engineering, 2014, 29, 160-179.	6.3	103
22	State-of-the-art review on Bayesian inference in structural system identification and damage assessment. Advances in Structural Engineering, 2019, 22, 1329-1351.	1.2	100
23	Bayesian system identification based on hierarchical sparse Bayesian learning and Gibbs sampling with application to structural damage assessment. Computer Methods in Applied Mechanics and Engineering, 2017, 318, 382-411.	3.4	91
24	Life-cycle cost optimal design of passive dissipative devices. Structural Safety, 2009, 31, 508-522.	2.8	87
25	New Bayesian Model Updating Algorithm Applied to a Structural Health Monitoring Benchmark. Structural Health Monitoring, 2004, 3, 313-332.	4.3	76
26	Factors contributing to the catastrophe in Mexico City during the earthquake of September 19, 1985. Geophysical Research Letters, 1986, 13, 593-596.	1.5	71
27	Spectral density estimation of stochastic vector processes. Probabilistic Engineering Mechanics, 2002, 17, 265-272.	1.3	71
28	Approximate Bayesian Computation by Subset Simulation. SIAM Journal of Scientific Computing, 2014, 36, A1339-A1358.	1.3	71
29	Bayesian compressive sensing for approximately sparse signals and application to structural health monitoring signals for data loss recovery. Probabilistic Engineering Mechanics, 2016, 46, 62-79.	1.3	70
30	Bayesian State Estimation Method for Nonlinear Systems and Its Application to Recorded Seismic Response. Journal of Engineering Mechanics - ASCE, 2006, 132, 396-410.	1.6	69
31	Hierarchical sparse Bayesian learning for structural damage detection: Theory, computation and application. Structural Safety, 2017, 64, 37-53.	2.8	68
32	Structural damage detection and assessment by adaptive Markov chain Monte Carlo simulation. Structural Control and Health Monitoring, 2004, 11, 327-347.	1.9	60
33	Unified Probabilistic Approach for Model Updating and Damage Detection. Journal of Applied Mechanics, Transactions ASME, 2006, 73, 555-564.	1.1	59
34	Stochastic Subset Optimization for reliability optimization and sensitivity analysis in system design. Computers and Structures, 2009, 87, 318-331.	2.4	59
35	Probabilistic approach for modal identification using non-stationary noisy response measurements only. Earthquake Engineering and Structural Dynamics, 2002, 31, 1007-1023.	2.5	58
36	HIERARCHICAL SPARSE BAYESIAN LEARNING FOR STRUCUTRAL HEALTH MONITORING WITH INCOMPLETE MODAL DATA. , 2015, 5, 139-169.		58

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37	Updating Properties of Nonlinear Dynamical Systems with Uncertain Input. Journal of Engineering Mechanics - ASCE, 2003, 129, 9-20.	1.6	56
38	Bayesian inference with Subset Simulation: Strategies and improvements. Computer Methods in Applied Mechanics and Engineering, 2018, 331, 72-93.	3.4	56
39	PRIOR AND POSTERIOR ROBUST STOCHASTIC PREDICTIONS FOR DYNAMICAL SYSTEMS USING PROBABILITY LOGIC. , 2013, 3, 271-288.		55
40	Robust reliability-based design of liquid column mass dampers under earthquake excitation using an analytical reliability approximation. Engineering Structures, 2007, 29, 3525-3537.	2.6	54
41	Multi-criteria optimal structural design under uncertainty. Earthquake Engineering and Structural Dynamics, 1999, 28, 741-761.	2.5	53
42	Reliability-Based Performance Objectives and Probabilistic Robustness in Structural Control Applications. Journal of Engineering Mechanics - ASCE, 2008, 134, 291-301.	1.6	53
43	Multitask Sparse Bayesian Learning with Applications in Structural Health Monitoring. Computer-Aided Civil and Infrastructure Engineering, 2019, 34, 732-754.	6.3	51
44	Simplified Estimation of Economic Seismic Risk for Buildings. Earthquake Spectra, 2004, 20, 1239-1263.	1.6	44
45	General network reliability problem and its efficient solution by Subset Simulation. Probabilistic Engineering Mechanics, 2015, 40, 25-35.	1.3	41
46	Cost-Effectiveness of Stronger Woodframe Buildings. Earthquake Spectra, 2006, 22, 239-266.	1.6	40
47	Bayesian model selection for ARX models and its application to structural health monitoring. Earthquake Engineering and Structural Dynamics, 2010, 39, 1737-1759.	2.5	40
48	Reliability-based robust control for uncertain dynamical systems using feedback of incomplete noisy response measurements. Earthquake Engineering and Structural Dynamics, 2003, 32, 751-770.	2.5	39
49	Structural protection using MR dampers with clipped robust reliability-based control. Structural and Multidisciplinary Optimization, 2007, 34, 431-443.	1.7	39
50	Full Gibbs Sampling Procedure for Bayesian System Identification Incorporating Sparse Bayesian Learning with Automatic Relevance Determination. Computer-Aided Civil and Infrastructure Engineering, 2018, 33, 712-730.	6.3	38
51	Effect of Seismic Risk on Lifetime Property Value. Earthquake Spectra, 2004, 20, 1211-1237.	1.6	37
52	Probabilistic control for the Active Mass Driver benchmark structural model. Earthquake Engineering and Structural Dynamics, 1998, 27, 1331-1346.	2.5	35
53	New Approximations for Reliability Integrals. Journal of Engineering Mechanics - ASCE, 1999, 125, 466-475.	1.6	35
54	Probabilistically robust nonlinear design of control systems for base-isolated structures. Structural Control and Health Monitoring, 2008, 15, 697-719.	1.9	35

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55	ASYMPTOTICALLY INDEPENDENT MARKOV SAMPLING: A NEW MARKOV CHAIN MONTE CARLO SCHEME FOR BAYESIAN INFERENCE. , 2013, 3, 445-474.		35
56	Predicting fatigue damage in composites: A Bayesian framework. Structural Safety, 2014, 51, 57-68.	2.8	33
57	Bayesian Learning Using Automatic Relevance Determination Prior with an Application to Earthquake Early Warning. Journal of Engineering Mechanics - ASCE, 2008, 134, 1013-1020.	1.6	32
58	Optimal sensor and actuator placement for structural health monitoring via an efficient convex cost-benefit optimization. Mechanical Systems and Signal Processing, 2020, 144, 106901.	4.4	30
59	Approximate Bayesian Computation by Subset Simulation using hierarchical state-space models. Mechanical Systems and Signal Processing, 2017, 84, 2-20.	4.4	29
60	Reliability-Based Design Using Two-Stage Stochastic Optimization with a Treatment of Model Prediction Errors. Journal of Engineering Mechanics - ASCE, 2010, 136, 1460-1473.	1.6	26
61	Near-real-time loss estimation for instrumented buildings. Structural Design of Tall and Special Buildings, 2006, 15, 3-20.	0.9	25
62	Virtual Inspector and its application to immediate pre-event and post-event earthquake loss and safety assessment of buildings. Natural Hazards, 2016, 81, 1861-1878.	1.6	24
63	Robust-to-Uncertainties Optimal Design of Seismic Metamaterials. Journal of Engineering Mechanics - ASCE, 2018, 144, .	1.6	23
64	Earthquake early warning application to buildings. Engineering Structures, 2014, 60, 155-164.	2.6	22
65	Identifiability of Geotechnical Site-Specific Trend Functions. ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering, 2017, 3, .	1.1	22
66	Approximate solutions for non-linear random vibration problems. Probabilistic Engineering Mechanics, 1996, 11, 179-185.	1.3	21
67	Structural damage detection of space frame structures with semi-rigid connections. Engineering Structures, 2021, 235, 112029.	2.6	21
68	Sparse Bayesian factor analysis for structural damage detection under unknown environmental conditions. Mechanical Systems and Signal Processing, 2021, 154, 107563.	4.4	21
69	ePAD: Earthquake Probability-Based Automated Decision-Making Framework for Earthquake Early Warning. Computer-Aided Civil and Infrastructure Engineering, 2013, 28, 737-752.	6.3	19
70	Global optimization using the asymptotically independent Markov sampling method. Computers and Structures, 2013, 126, 107-119.	2.4	18
71	Structural damage in Mexico City. Geophysical Research Letters, 1986, 13, 589-592.	1.5	17
72	Bayes-Mode-ID: A Bayesian modal-component-sampling method for operational modal analysis. Engineering Structures, 2019, 189, 222-240.	2.6	17

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73	Propagating uncertainties for loss estimation in performance-based earthquake engineering using moment matching. <i>Structure and Infrastructure Engineering</i> , 2009, 5, 245-262.	2.0	16
74	A New Adaptive Rejection Sampling Method Using Kernel Density Approximations and Its Application to Subset Simulation. <i>ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering</i> , 2017, 3, .	1.1	16
75	Novel sparseness-inducing dual Kalman filter and its application to tracking time-varying spatially-sparse structural stiffness changes and inputs. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 372, 113411.	3.4	15
76	Linear system response by DFT: Analysis of A recent modified method. <i>Earthquake Engineering and Structural Dynamics</i> , 1993, 22, 599-615.	2.5	14
77	Bayesian operational modal analysis and assessment of a full-scale coupled structural system using the Bayes-Mode-ID method. <i>Engineering Structures</i> , 2019, 186, 183-202.	2.6	14
78	Bayesian inference with reliability methods without knowing the maximum of the likelihood function. <i>Probabilistic Engineering Mechanics</i> , 2018, 53, 14-22.	1.3	13
79	Hierarchical Stochastic Model in Bayesian Inference for Engineering Applications: Theoretical Implications and Efficient Approximation. <i>ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering</i> , 2019, 5, .	0.7	13
80	A new stationary PDF approximation for non-linear oscillators. <i>International Journal of Non-Linear Mechanics</i> , 2000, 35, 657-673.	1.4	12
81	A Bayesian Learning Method for Structural Damage Assessment of Phase I IASC-ASCE Benchmark Problem. <i>KSCE Journal of Civil Engineering</i> , 2018, 22, 987-992.	0.9	11
82	Non-parametric stochastic subset optimization for design problems with reliability constraints. <i>Structural and Multidisciplinary Optimization</i> , 2015, 52, 1185-1204.	1.7	10
83	Simplified Estimation of Seismic Life-Cycle Costs. , 2003, , 229.		9
84	Combining Multiple Earthquake Models in Real Time for Earthquake Early Warning. <i>Bulletin of the Seismological Society of America</i> , 0, , .	1.1	8
85	On choosing state variables for piecewise-smooth dynamical system simulations. <i>Nonlinear Dynamics</i> , 2019, 95, 1165-1188.	2.7	8
86	An Engineering Application of Earthquake Early Warning: ePAD-Based Decision Framework for Elevator Control. <i>Journal of Structural Engineering</i> , 2016, 142, 04015092.	1.7	7
87	Using Approximate Bayesian Computation by Subset Simulation for Efficient Posterior Assessment of Dynamic State-Space Model Classes. <i>SIAM Journal of Scientific Computing</i> , 2018, 40, B168-B195.	1.3	7
88	Sequential sparse Bayesian learning with applications to system identification for damage assessment and recursive reconstruction of image sequences. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2021, 373, 113545.	3.4	7
89	Rare-Event Simulation. , 2017, , 1075-1100.		7
90	Seismic Early Warning Systems: Procedure for Automated Decision Making. , 2007, , 179-209.		7

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91	<title>Entropy-based optimal sensor location for structural damage detection</title> . , 1998, 3325, 161.		6
92	Robust Stochastic Design of Linear Controlled Systems for Performance Optimization. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2010, 132, .	0.9	6
93	Synergistic combination of systems for structural health monitoring and earthquake early warning for structural health prognosis and diagnosis. Proceedings of SPIE, 2012, , .	0.8	6
94	Novel Sparse Bayesian Learning for Structural Health Monitoring Using Incomplete Modal Data. , 2013, , .		6
95	Rare-Event Simulation. , 2015, , 1-26.		6
96	Bayesian System Identification using auxiliary stochastic dynamical systems. International Journal of Non-Linear Mechanics, 2017, 94, 72-83.	1.4	6
97	Sparse Bayesian learning for damage identification using nonlinear models: Application to weld fractures of steelâ€frame buildings. Structural Control and Health Monitoring, 2022, 29, e2870.	1.9	6
98	System Identification of Constructed Facilities: Challenges and Opportunities across Hazards. , 2008, , .		3
99	Robust diagnostics for Bayesian compressive sensing with applications to structural health monitoring. Proceedings of SPIE, 2011, , .	0.8	3
100	Stochastic optimization using automatic relevance determination prior model for Bayesian compressive sensing. , 2012, , .		3
101	Connecting mem-models with classical theories. Nonlinear Dynamics, 2021, 103, 1321-1344.	2.7	3
102	Robust sparse Bayesian learning for broad learning with application to high-speed railway track monitoring. Structural Health Monitoring, 2023, 22, 1256-1272.	4.3	3
103	Approximate Bayesian Computation by Subset Simulation for model selection in dynamical systems. Procedia Engineering, 2017, 199, 1056-1061.	1.2	2
104	Demonstrating the power of extended Masing models for hysteresis through model equivalencies and numerical investigation. Nonlinear Dynamics, 2022, 108, 827-856.	2.7	2
105	OptiSensâ€”Convex optimization of sensor and actuator placement for ultrasonic guided-wave based structural health monitoring. SoftwareX, 2021, 13, 100643.	1.2	1
106	Probabilistic control for the Active Mass Driver benchmark structural model. , 1998, 27, 1331.		1
107	Updating Nonlinear Dynamical Models Using Response Measurements Only. , 2003, , 1593.		0
108	Stochastic Approach to Control and Identification of Smart Structures. , 2002, , 457-464.		0

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109	Approximate Bayesian Computation by Subset Simulation for Parameter Inference of Dynamical Models. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 37-50.	0.3	0