INDEX FOR VOLUME 5, 2015

TABLE OF CONTENTS FOR VOLUME 5

INTERNATIONAL JOURNAL FOR UNCERTAINTY QUANTIFICATION

Page Numbers for Issues:
Issue 1: 1-98; **Issue 2:** 99-193; **Issue 3:** 195-295;
Issue 4: 297-392; **Issue 5:** 393-489; **Issue 6:** 491-583

ISSUE 1

Minimal Sparse Sampling for Fourier-Polynomial Chaos in Acoustic Scattering **1**
Roger M. Oba

A Mixed Uncertainty Quantification Approach using Evidence Theory and Stochastic Expansions **21**
Harsheel Shah, Serhat Hosder, & Tyler Winter

A Gradient-Based Sampling Approach for Dimension Reduction of Partial Differential Equations with Stochastic Coefficients **49**
Miroslav Stoyanov & Clayton G. Webster

Bayesian Inference for Inverse Problems Occurring in Uncertainty Analysis **73**
Shuai Fu, Gilles Celeux, Nicolas Bousquet, Mathieu Couplet

ISSUE 2

A Nonstationary Covariance Function Model for Spatial Uncertainties in Electrostatically Actuated Microsystems **99**
Aravind Alwan, Narayana R. Aluru

Bivariate Quantile Interpolation for Ensemble Derived Probability Density Estimates **123**
Brad Eric Hollister, Alex Pang

Hierarchical Sparse Bayesian Learning for Strucutral Health Monitoring with Incomplete Modal Data **139**
Yong Huang, James L. Beck

Polynomial-Chaos-Based Kriging **171**
Roland Schobi, Bruno Sudret, Joe Wiart

ISSUE 3

Preface **vii**
A. Chernov & F. Nobile

Uncertainty Quantification for Maxwell's Equations Using Stochastic Collocation and Model Order Reduction **195**
P. Benner & J. Schneider

Second-Order Sensitivity Analysis of Parameter Estimation Problems **209**
E. Kostina & M. Nattermann

A Hermite Spectral Method for a Fokker-Planck Optimal Control Problem in an Unbounded Domain **233**
M. Mohammadi & A. Borzi

Stochastic Galerkin Methods and Model Order Reduction for Linear Dynamical Systems **255**
R. Pulch & E. J. W. ter Maten

An Optimal Sampling Rule for Nonintrusive Polynomial Chaos Expansions of Expensive Models **275**
M. Sinsbeck & W. Nowak

ISSUE 4

Probabilistic Quantification of Hazards: A Methodology using Small Ensembles of Physics-Based Simulations and Statistical Surrogates **297**
M.J. Bayarri, J.O. Berger, E.S. Calder, A K. Patra, E.B. Pitman, E.T. Spiller, & R.L. Wolpert

Uncertainty Quantification of the GEM Challenge Magnetic Reconnection Problem using the Multilevel Monte Carlo Method **327**
É.M. Sousa, G. Lin, & U. Shumlak

Surrogate Preposterior Analyses for Predicting and Enhancing Identifiability in Model Calibration **341**
Z. Jiang, D.W. Apley, & W. Chen

A New Gibbs Sampling Based Bayesian Model Updating Approach using Modal Data from Multiple Setups **361**
S. Bansal

Low-Cost Multi-Dimensional Gaussian Process with Application to Uncertainty Quantification **375**
B.A. Konomi & G. Lin

ISSUE 5

High Dimensional Sensitivity Analysis using Surrogate Modeling and High Dimensional Model Representation **393**
M. Kubicek, E. Minisci, & M Cisternino

A Posteriori Error Estimation for a Cut Cell Finite Volume Method with Uncertain Interface Location **415**
J.B. Collins, D. Estep, & S. Tavener

An Uncertainty Visualization Technique using Possibility Theory: Possibilistic Marching Cubes **433**
Y. He, M. Mirzargar, S. Hudson, R.M. Kirby, & R.T. Whitaker

A Gradient-Enhanced Sparse Grid Algorithm for Uncertainty Quantification **453**
J.H.S. de Baar & B. Harding

Random Predictor Models for Rigorous Uncertainty Quantification **469**
L.G. Crespo, S.P. Kenny, & D.P. Giesy

ISSUE 6

An Error Subspace Perspective on Data Assimilation **491**
A. Sandu & H. Cheng

Bayesian Approach to the Statistical Inverse Problem of Scatterometry: Comparison of Three Surrogate Models **511**
S. Heidenreich, H. Gross, & M. Bär

A Block Circulant Embedding Method for Simulation of Stationary Gaussian Random Fields on Block-Regular Grids **527**
M. Park & M. V. Tretyakov

Optimal Sensor Placement for the Estimation of Turbulence Model Parameters in CFD 545
D. I. Papadimitriou & C. Papadimitriou

Robustness of Wilks' Conservative Estimate of Confidence Intervals **569**
J. P. Hessling & J. Uhlmann

INDEX to Volume 5 **587**

AUTHOR INDEX TO VOLUME 5

INTERNATIONAL JOURNAL FOR UNCERTAINTY QUANTIFICATION

Page Numbers for Issues:

Issue 1: 1-98; **Issue 2:** 99-193; **Issue 3:** 195-295;
Issue 4: 297-392; **Issue 5:** 393-489; **Issue 6:** 491-583

Aluru, N.R., 99
Alwan, A., 99
Apley, D.W., 341
Bansal, S., 361
Bär, M., 511
Bayarri, M.J., 297
Beck, J.L., 139
Benner, P., 195
Berger, J.O., 297
Borzi, A., 233
Bousquet, N., 73
Calder, E.S., 297
Celeux, G., 73
Chen, W., 341
Cheng, H., 491
Chernov, A., vii
Cisternino, M., 393
Collins, J.B., 415
Couplet, M., 73
Crespo, L.G., 469
de Baar, J.H.S., 453
Estep, D., 415
Fu, S., 73
Giesy, D.P., 469
Gross, H., 511
Harding, B., 453
He, Y., 433
Heidenreich, S., 511
Hessling, J.P., 569
Hollister, B.E., 123
Hosder, S., 21
Huang, Y., 139
Hudson, S., 433
Jiang, Z., 341
Kenny, S.P., 469
Kirby, R.M., 433
Konomi, B.A., 375
Kostina, E., 209
Kubicek, M., 393
Lin, G., 327, 375
Minisci, E., 393
Mirzargar, M., 433
Mohammadi, M., 233
Nattermann, M., 209
Nobile, F., vii
Nowak, W., 275
Oba, R.M., 1
Pang, A., 123
Papadimitriou, C., 545
Papadimitriou, D.I., 545
Park, M., 527
Patra, A.K., 297
Pitman, E.B., 297
Pulch, R., 255
Sandu, A., 491
Schneider, J., 195
Schobi, R., 171
Shah, H., 21
Shumlak, U., 327
Sinsbeck, M., 275
Sousa, E.M., 327
Spiller, E.T., 297
Stoyanov, M., 49
Sudret, B., 171
Tavener, S., 415
ter Maten, E. Jan W., 255
Tretyakov, M.V., 527
Uhlmann, J., 569
Webster, C.G., 49
Whitaker, R.T., 433
Wiart, J., 171
Winter, T., 21
Wolpert, R.L., 297

SUBJECT INDEX TO VOLUME 5

INTERNATIONAL JOURNAL FOR UNCERTAINTY QUANTIFICATION

Page Numbers for Issues:
Issue 1: 1-98; **Issue 2:** 99-193; **Issue 3:** 195-295;
Issue 4: 297-392; **Issue 5:** 393-489; **Issue 6:** 491-583

acoustics, 1
arbitrary distribution, 275
assessment error, 73
Bayesian analysis, 73
Bayesian inference, 99, 341, 511, 545
Bayesian model updating, 361
Bayesian Ockham razor, 139
benchmark functions, 171
block fast-fourier transform, 527
circulant embed-collocation, 527
computational fluid dynamics, 21
computational statistics, 123
computer codes (experiments), 375
computer modeling, 297
cut-HDMR, 393
damage detection, 139
data assimilation, 491
density estimation, 123
dependent parameters, 275
design of experiments, 73
ding method, 527
dynamical system, 139, 255
electromagnetics, 195
ensemble filters, 491
evaluation, 569
evidence theory, 21
Fokker-Planck equation, 233
Gaussian process modeling, 171
Gibbs sampling, 361
hazard assessment, 297
Hermite spectral discretization, 233
hierarchical sparse Bayesian learning, 139
high-dimensional approximation, 49
high-dimensional methods, 1
high-dimensional space, 393
high-dimensional surrogates, 453
hybrid methods, 491
IASC-ASCE simulated Benchmark problem, 139
information entropy, 545
inverse problem, 73, 139, 209, 511
irregular grids, 527
isosurface extraction, 433
Karhunen-Loeve expansion, 49
Kriging, 73, 171
linear model of coregionalization, 375
magnetic reconnection, 327
marching cubes, 433
Markov chain Monte Carlo, 375
material uncertainties, 195
maximum likelihood, 209
meta-modeling, 171
microelectromechanical systems (MEMS), 99
model calibration, 341
model order reduction, 195, 255
modeling, 569
Monte Carlo, 49, 327
multi-level Monte Carlo, 327
multiple setups, 361
multivariate Gaussian process, 375
nested quadrature rules, 275
nonstationary covariance function, 99
optimal control theory, 233
optimization, 469
parameter estimation, 209, 341, 469
PC-Kriging, 171
point-collocation, 21
polynomial chaos, 1, 21, 255, 275
polynomial chaos expansions, 171
porous media flow, 415
possibilistic marching cubes, 433
possibility theory, 433
probabilistic collocation, 327
propagation, 569
quadrature, 255
quasi-neutral ion cyclotron wave, 327
random fields, 123
random process, 99, 469
representation of uncertainty, 49, 21, 123, 433, 469
representing of uncertainty, 209
robustness, 545
sampling, 569
sampling techniques, 527
scatterometry, 511
sensitivity analysis, 393
separability, 375
Smolyak algorithm, 1
sparse grid, 195, 453
spatial statistics, 123

spatial uncertainty, 99, 123, 415
stationary Gaussian random field, 527
statistics, 297
stochastic collocation, 195, 275
stochastic Galerkin method, 255
stochastic model reduction method, 49
stochastic modeling, 255, 415
stochastic partial differential equations, 1, 49, 511
stochastic response surface method, 469
stochastic sensitivity analysis, 49, 209
stochastic simulation, 361
stochastic sparse grid collocation, 1
structural health monitoring, 139
symmetric block-toeplitz matrices, 527
turbulence models, 545
two-fluid plasma model, 327
uncertainty, 297, 569
uncertainty quantification, 21, 99, 123, 195, 209, 255, 275, 341, 361, 393, 415, 453, 469
uncertainty visualization, 433
variational methods, 491
volcanic hazards, 297