

- Nordbotten, J., Celia, M., Bachu, S., Dahle, H., 2005. Semianalytical solution for CO₂ leakage through an abandoned well. *Environmental Science & Technology* 39 (2), 602–611.
- Nowak, W., 2009. Best unbiased ensemble linearization and the quasi-linear Kalman ensemble generator. *Water Resources Research* 45, W04431, <http://dx.doi.org/10.1029/2008WR007328>.
- Oladyshkin, S., Nowak, W., 2012. Data-driven uncertainty quantification using the arbitrary polynomial chaos expansion. *Reliability Engineering & System Safety* 106, 179–190.
- Oladyshkin, S., Class, H., Helmig, R., Nowak, W., 2011. A concept for data-driven uncertainty quantification and its application to carbon dioxide storage in geological formations. *Advances in Water Resources* 34, 1508–1518, doi:10.1016/j.advwatres.2011.08.005.
- Oladyshkin, S., Class, H., Helmig, R., Nowak, W., 2011. An integrative approach to robust design and probabilistic risk assessment for CO₂ storage in geological formations. *Computational Geosciences* 15 (3), 565–577, <http://dx.doi.org/10.1007/s10596-011-9224-8>.
- Oladyshkin, S., de Barros, F.P.J., Nowak, W., 2012. Global sensitivity analysis: a flexible and efficient framework with an example from stochastic hydrogeology. *Advances in Water Resources* 37, 10–22.
- Reuter, U., Liebscher, M., 2008. Global sensitivity analysis in view of nonlinear structural behavior. In: *Proceedings of the 7th LS-Dyna Forum, Bamberg*.
- Riddiford, F., Wright, I., Bishop, C., Espie, T., Tourqui, A., 2004. Monitoring geological storage the in Salah gas CO₂ storage project. In: *Proceedings of the 7th International Greenhouse Gas Technologies Conference*, Vancouver, BC.
- Rohmer, J., Seyedi, D., 2010. Coupled large scale hydromechanical modelling for caprock failure risk assessment of CO₂ storage in deep saline aquifers. *Oil & Gas Science and Technology-Revue de l'Institut Français du Pétrole* 65 (3), 503–517.
- Saltelli, A., 2008. *Global Sensitivity Analysis: The Primer*. Wiley, UK, Chichester.
- Saltelli, A., 2010. Global sensitivity analysis: an introduction. In: *Proc. 4th International Conference on Sensitivity Analysis of Model Output*, pp. 27–43.
- Sobol, I., 2001. Global sensitivity indices for nonlinear mathematical models and their Monte Carlo estimates. *Mathematics and Computers in Simulation* 55 (1–3), 271–280.
- Soize, C., Ghanem, R., 2004. Physical systems with random uncertainties: chaos representations with arbitrary probability measure. *SIAM Journal on Scientific Computing* 26 (2), 395–410.
- Sudret, B., 2008. Global sensitivity analysis using polynomial chaos expansions. *Reliability Engineering & System Safety* 93 (7), 964–979.
- Thomas, D., 2005. *Carbon Dioxide Capture for Storage in Deep Geologic Formations – Results from the CO₂ Capture Project*, vol. 1. Elsevier Science Ltd.
- Viebahn, P., Nitsch, J., Fischeidick, M., Esken, A., Schüwer, D., Supersberger, N., Zuberbühler, U., Edenhofer, O., 2007. Comparison of carbon capture and storage with renewable energy technologies regarding structural, economic, and ecological aspects in Germany. *International Journal of Greenhouse Gas Control* 1 (1), 121–133.
- Villadsen, J., Michelsen, M.L., 1978. *Solution of Differential Equation Models by Polynomial Approximation*. Prentice-Hall, US, Mountain.
- Walton, F., Tait, J., LeNeveu, D., Sheppard, M., 2004. Geological storage of CO₂: a statistical approach to assessing performance and risk. In: *Proceedings of the 7th International Conference on Greenhouse Gas Control Technologies (GHGT-7)*.
- Wan, X., Karniadakis, G., 2007. Multi-element generalized polynomial chaos for arbitrary probability measures. *SIAM Journal on Scientific Computing* 28 (3), 901–928.
- Wiener, N., 1938. The homogeneous chaos. *American Journal of Mathematics* 60, 897–936.
- Wilson, E., Johnson, T., Keith, D., 2003. Regulating the ultimate sink: Managing the risks of geologic CO₂ storage. *Environmental Science and Technology* 37 (16), 3476–3483.
- Witteveen, J., Bijl, H., 2006. Modeling arbitrary uncertainties using Gram–Schmidt polynomial chaos. In: *Proceedings of the 44th AIAA Aerospace Sciences Meeting and Exhibit*, number AIAA-2006-0896, vol. 117, Reno, NV.
- Witteveen, J., Sarkar, S., Bijl, H., 2007. Modeling physical uncertainties in dynamic stall induced fluid–structure interaction of turbine blades using arbitrary polynomial chaos. *Computers & Structures* 85 (11), 866–878.
- Xiu, D., Hesthaven, J., 2005. High-order collocation methods for differential equations with random inputs. *SIAM Journal on Scientific Computing* 27 (3), 1118–1139.
- Xiu, D., Karniadakis, G., 2002. The Wiener–Askey polynomial chaos for stochastic differential equations. *SIAM Journal on Scientific Computing* 24 (2), 619–644.
- Xiu, D., Karniadakis, G.E., 2003. Modeling uncertainty in flow simulations via generalized polynomial chaos. *Journal of Computational Physics* 187, 137–167.
- Zhang, D., Lu, Z., 2004. An efficient, high-order perturbation approach for flow in random media via Karhunen–Loeve and polynomial expansions. *Journal of Computational Physics* 194, 773–794.
- P. Zweigel, L. Heill, Studies on the likelihood for caprock fracturing in the sleipner CO₂ injection case, Tech. rep., Sintef Petroleum Research Report, 2003.