APPROXIMATION WITH NOISY MEASUREMENT DATA AND REDUCED MODELS.

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In this work, we address the problem of reconstructing physical systems using measured data from the system itself and a parametric PDE model. If the PDE solutions depend smoothly on the parameters, it is possible to reduce the computational complexity of the approximation by reduced modeling techniques (see [1, 2]). One algorithm which has been proposed for this type of context is the so-called Generalized Empirical Interpolation Method (GEIM) described in [3, 4]). In this talk, we will present recent advances in the understanding of the stability of the method and also regarding the case of noisy measurements. Some results will be illustrated with a numerical examples devoted to the reconstruction of neutron flux in nuclear reactors (see [5]).

This is a joint collaboration with J.P. Argaud, B. Bouriquet and H. Gong from Électricité de France and Y. Maday from Université Pierre et Marie Curie and Brown University.

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