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Lior Horesh  
**Optimal Experimental Design of Non-linear Ill-posed  
Problems Based on Sparsity Constraints.**

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The field of optimal experimental design of over-determined problems is well established, covering a diverse of optimality criteria. Yet, despite the practical necessity, optimal experimental design of ill-posed problems and in particular non-linear problems has hardly been addressed. In this talk we discuss the intrinsic differences between over-determined and ill-posed experimental design, the complications arising due to non-linearity, and finally we propose a generic framework for optimal experimental design of non-linear ill-posed problems. We demonstrate the effectiveness of our algorithm for several common model problems.