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Roza Aceska* (raceska@bsu.edu), Muncie, IN 47304, and **Alessandro Arsie** and **Ramesh Karki**. *Approximation of Solutions of non-linear PDEs from finitely many samples*. Preliminary report.

We show how to reconstruct optimally the solution of certain non-linear PDEs in a suitable Sobolev class, using a finite set of measurements. In particular, we show that for our classes of PDEs the optimal sampling does not depend on the spectrum of the operators involved, but just on the order of the PDE. We also tackle the same problem in the case in which the coefficients of the PDEs depend explicitly on time, thus generating a non-autonomous dynamical system. We discuss the possibility of using a variation of our approach to deal with some nonlinear integro-differential equations or non-linear PDEs that are C-integrable. (Received February 01, 2017)