Title: A class of strongly nonlinear integral equations on the space of vector measures and their optimal control

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In this paper, we consider a class of strongly nonlinear integral equations on the Banach space of signed measures, and then extend these results to include vector measures with values in finite dimensional spaces. We prove the existence and uniqueness of solutions of the integral equations. Then we consider several optimal control problems controlling the range of vector measures. Also, we consider optimization problems related to relative entropy of solution measures relative to a reference measure.

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