

A nonlinear integral transform and a global inverse bifurcation theory

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Abstract. We consider a nonlinear integral transform and show that the transform acts as a homeomorphism between certain metric spaces of positive functions. We apply the result to the inverse bifurcation problem of determining the nonlinear term of a certain nonlinear Sturm-Liouville problem from its first bifurcating branch, and we establish the well-posedness of the inverse problem. An application to an inverse problem of determining a restoring force from a time-map is also given.

Mathematics Subject Classification (2010): 44A15 (primary); 34A55, 45P05 (secondary).