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Irena M Lasiecka* (il2v@virginia.edu), Department of Mathematics, University of Virginia, Charlottesville, VA 22901. *Well-posedness and long time behavior of weak solutions to Boussinesq-Kirchoff equations.*

Dynamics for a class of nonlinear 2D Kirchhoff-Boussinesq models will be considered. These nonlinear plate models are characterized by a presence of a nonlinear source that alone leads to finite -time blow up of solutions. In order to counteract, restorative forces are introduced, which however are of a supercritical nature. This raises natural problems related to existence and wellposedness of finite energy (weak) solutions.

It is shown that finite energy solutions do exist globally , are unique and satisfy Hadamard wellposedness criterium. In addition, existence of global attractors is established. The proof is based on logarithmic control of the lack of Sobolev's embedding along with the method introduced in I. Chueshov and I. Lasiecka, Long-time behavior of second order evolution equations with nonlinear damping, *Memoirs of AMS*, vol.195, no. 912, AMS, 2008, and J. Ball, *Global attractors for semilinear wave equations* DCDS, 2004. (Received March 01, 2009)