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John Fun-Choi Chan and **Sze-Man Ngai*** (smngai@georgiasouthern.edu), Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA 30460-8093, and **Alexander Teplyaev** (alexander.teplyaev@uconn.edu), Department of Mathematics, University of Connecticut, Storrs, CT 06269-3009. *One-dimensional wave equations defined by fractal Laplacians.*

We study one-dimensional wave equations defined by a class of fractal Laplacians. These Laplacians are defined by fractal measures generated by iterated function systems with overlaps. We prove the existence and uniqueness of weak solutions. We also study numerical computations of the solutions and prove the convergence of the approximation scheme. This is a joint work with John F. Chan and Alexander Teplyaev. (Received August 04, 2010)