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Robert Michal Owczarek* (rmo@lanl.gov), MS 443, Los Alamos, NM 87545. *New results in modeling of acoustic stimulation of oil recovery.* Preliminary report.

There are numerous observations, related to earthquakes and laboratory and field experiments showing that acoustic stimulation may increase output of certain oil fields. The physical effects behind the stimulation are complex and not understood, so that there are many models of the phenomenon. One of the models assumes stimulation works because of peristaltic movements of the pores in the matrix rocks. We give a more thorough analysis of the mathematical model of peristaltic movement, in the long wavelength approximation. We give criteria for convergence of the series describing the general solution. Then we study the boundary condition. (Received February 14, 2007)