1116-35-1921 **Sebastian Acosta*** (sebastian.acosta@bcm.edu). *Photoacoustic tomography taking into account thermoelastic attenuation.* Preliminary report.

We consider a mathematical model for photoacoustic imaging to take into account attenuation due to thermoelastic dissipation. The propagation of acoustic waves is governed by a scalar wave equation coupled to the heat equation for the excess temperature. We seek to recover the initial acoustic profile from knowledge of boundary measurements. This inverse problem is a special case of boundary observability for a thermoelastic system. This leads to the use of control/observability tools to prove the unique and stable recovery of the initial acoustic profile in the weak thermoelastic coupling regime. We propose and implement (numerically) a reconstruction algorithm. (Received September 21, 2015)