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Catherine Lebiedzik* (ar6554@wayne.edu), Wayne State University, Department of Mathematics, 1150 Faculty/Administration Building, Detroit, MI 48202. *Optimal control of a thermoelastic structural acoustic model.*

We consider point control of a structural acoustic model with thermoelastic effects. The key feature of this paper is that the two-dimensional plate modeling the active wall of the acoustic chamber has clamped boundary conditions. For this case a new optimal regularity result has recently become available. Using this new result for the plate alone, we derive a sharp regularity result for the overall coupled system of wave and thermoelastic plate equations. This allows for the study of optimal control of the coupled system. (Received September 22, 2009)