**Conference on Applied Inverse Problems 2007:
Theoretical and Computational Aspects**

Minisymposium: *Inverse Problems in Thermal Imaging*
Organizer: Kurt Bryan

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Stability and instability for the determination of unknown isothermal surfaces

We consider the stability issue for an inverse parabolic problem arising from nondestructive evaluation by thermal imaging. We wish to determine an unknown portion of the boundary of a thermic conducting body by prescribing initial and boundary values of the temperature and by measuring the corresponding thermal flux on an accessible and known portion of the boundary. The unknown part of the boundary to be determined is assumed to be an isothermal surface.

We characterize the stability of this problem by coupling stability results with an instability analysis. Relationships with essentially optimal temperature profiles to be prescribed at the boundary might also be discussed.

This is joint work with Michele Di Cristo and Sergio Vessella.

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