1093-58-192 **Emily B. Dryden*** (emily.dryden@bucknell.edu), Department of Mathematics, One Dent Drive, Bucknell University, Lewisburg, PA 17837, **Thomas Kappeler** (thomas.kappeler@math.uzh.ch), Institut für Mathematik, Universität Zürich, Winterthurerstrasse 190, 8057 Zürich, Switzerland, and **Michiel van den Berg** (m.vandenberg@bris.ac.uk), School of Mathematics, University of Bristol, University Walk, Bristol, BS8 1TW, United Kingdom. *Isospectrality and heat content.*

The examples of isospectral non-isometric "drums" constructed by Carolyn Gordon, David Webb, and Scott Wolpert show that one cannot hear the shape of a piecewise smooth planar domain D. They also tell us that the eigenvalues of the Dirichlet Laplace operator acting on smooth functions on D form an incomplete set of geometric invariants, and it is therefore natural to look for ways to distinguish such non-isometric sound-alike drums. We will discuss what we can learn from heating these drums and studying the amount of heat in them over time. (Received August 13, 2013)