

Interest in Bone-Like Materials Includes Thermal Qualities

To the Editor:

Michelle L. Oyen has written an excellent expository article on the current status of biomimetic synthesis of bone and bone-like materials in *MRS Bulletin* 33(1)(January 2008) p. 49.

Her article, in many ways, took me back to my postdoctoral work at Rensselaer Polytechnic Institute with J. Lawrence Katz under a fellowship from the National Institute of Dental Research. Our studies focused primarily on the effects of radia-

tion and mechanical damage on bone—at the level of chemical bonds breaking.

As a chemist, and now something of a materials scientist, I continue to be awed by the way that organic and inorganic chemistry “merge” in this extraordinary biomaterial.

In an interesting side project, one of my undergraduate students measured the specific heat of bovine femoral bone and found a fairly high value for this property. We theorize that perhaps our bony skeleton might also be a “heat sink” to slow down impending hypothermia.

This biomaterial continues to amaze me—just as it does Dr. Oyen.

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Response:

Professor Slezak makes an excellent point. My review focused clearly on mechanical properties and made no mention of the heat capacity, thermal conductivity, or thermal expansion coefficient of bone. All of these are likely to be of interest as we explore novel uses for bone-like materials.

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