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## New high heat load monochromator

Gordon S. Knapp, Guy Jennings, and Mark A. Beno

*Materials Science Division, Argonne National Laboratory, 9700 S. Cass Avenue, Argonne, IL 60439*

Recently, a new type of cryogenically cooled high heat load monochromatic was proposed [1], developed [2], and tested [3] at ESRF. These tests showed that powers of 153 W and power densities of 450 W/mm<sup>2</sup> cause only negligible strain. These powers and power densities are larger than will be absorbed by the crystal at APS in the first phase. In our earlier work we suggested that the crystal might show strain at much lower values of the powers and power densities. We now can explain the ESRF results in terms of the unique role the negative thermal expansion coefficient of Si plays in minimizing strain.

[1] G. S. Knapp, M. A. Beno, C. S. Rogers, C. L. Wiley, and P. L. Cowan, *Rev. Sci. Instrum.*, 65, 2792 (1994).

[2] G. S. Knapp, C. S. Rogers, M. A. Beno, C. W. Wiley, G. Jennings, P.L. Cowan, and C. S. Rogers, *Rev. Sci. Instrum.*, 66, 2138 (1995).

[3] C. S. Rogers, D. M. Mills, W. K. Lee, G. S. Knapp, J. Homberg, A. Fruend, M. Wulff, M. Rossat, and M. Hanfland, *Rev. Sci. Instrum.*, 66, 3494 (1995).