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## **Thermal buckling analysis for a contamination barrier for an x-ray beamline at the Advanced Photon Source**

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A general, one-dimensional analytical solution for thermal buckling was formulated for a thin disk with an axisymmetrical, Gaussian-distributed heat flux. This solution helps to predict the thermal buckling behavior as well as optimizes the design of a vacuum contamination barrier for x-ray beamlines at the Advanced Photon Source.

Parametric studies were performed to determine the worst-case scenario for the above component. The calculated critical temperature and the maximum temperature during operation are also reported and verified with a commercial finite element code ANSYS.

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