

John A. Lynch Lecture Series

MODELING GLIOMA GROWTH WITH FULLY ANISOTROPIC DIFFUSION

4:30 pm Tuesday, October 15
101 Jordan Hall of Science

Reception to precede the lecture at
4:00 pm in the Jordan Hall galleria

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The human brain has a complex geometric structure consisting of white and gray matter, blood vessels, ventricles, and other elements. It forms a highly anisotropic medium, with different properties in different areas of the brain. Gliomas, a type of tumor, are known to invade along the brain's white matter tracks and along other brain structures. Using diffusion tensor imaging (DTI), it is now possible to obtain more information about brain structures. Learn how this DTI information can be used to parametrize a fully anisotropic diffusion equation for the spread of these tumors. We validate the model on clinical data of glioma patients, and discuss the future use in treatment design.