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Surdutovich Studies the Effects of Radiation on Tissue

High energy carbon ions are increasingly used to treat cancer. But what really happens when a carbon ion interacts with tissue? Visiting Assistant Professor **Eugene Surdutovich**, of the **Department of Physics**, has launched a wide-ranging, multi-scale study of the interaction of ions with tissue. In his recent publication, **Temperature and Pressure Spikes in Ion-Beam Cancer Therapy** (**Physcial Review E**, Volume 80, Article Number 031913, September, 2009), Surdutovich finds that the ion can cause a very large temperature increase very close to the ion track for a very brief time. This "thermal spike" can result in many thermal and mechanical effects, including brief pressure increases. The effect is just one piece of a fascinating puzzle of how radiation damages DNA.

SUMMARY

High energy carbon ions are increasingly used to treat cancer. But what really happens when a carbon ion interacts with tissue? Visiting Assistant Professor Eugene Surdutovich, of the Department of Physics, has launched a wide-ranging, multi-scale study of the interaction of ions with tissue.

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