State awards Cornell $12M for molecular X-ray imaging device

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ITHACA — Gov. George Pataki was in Ithaca Saturday to announce $12 million in state funds for the development of a state-of-the art X-ray at Cornell University.

Calling it a thousand times brighter than any X-ray in existence, Robert Richardson, vice provost for research at Cornell, said the Energy Recovery Linac, or ERL, will be able to produce images only imagined before.

 If developed, the ERL would allow scientists to create a 3-D videos of molecules in motion. Considering those molecules move at a rate calculated in billionths of a second, capturing such an image is quite a feat.

In contrast, the current operation for viewing molecules at the Wilson Synchotron Lab takes one split-second shot of the particles just before they are destroyed.

“My friend compared it to getting an image with a shotgun blast,” Richardson said of the current system. “This (new machine) would be a lot more subtle than anything in the world.”

Before it can obtain that status, significant research and development is still required. The $12 million from New York state is intended to allow for four years of engineering feasibility studies and infrastructure development. The results of that work will allow Cornell to apply for $500 million in federal funding to build a permanent home for the ERL.

Already, Cornell has invested $10 million in the technology, which was first developed several years ago by Maury Tigner, the Hans A. Bethe Professor of Physics Emeritus and director of the Laboratory for Elementary-Particle Physics. The $10 million was in addition to $18 million given by the National Science Foundation in 2005 to develop a prototype of the machine.

A full-scale facility to house the ERL is in the design phase, with the intention of applying for another National Science Foundation grant by 2007. If approved, it would take five years to build the facility, which would be incorporated into the existing synchotron lab.

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