ACCELERATOR SEMINAR

"Synchrotron Radiation Sources and Free-Electron Lasers – Research Tools of Extraordinary Versatility"

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Synchrotron radiation is a key consideration in the design of electron or positron accelerators. As a tool for probing and imaging matter on the scales from Angstroms to centimeters, it has become an indispensable tool for many thousands of physicists, chemists, biologists and geologists. It has proven to be a powerful specialized tool for archaeologists and art historians as well. Free-electron lasers are specialized sources of synchrotron radiation that create and exploit the collective motion of electrons in accelerators to produce extremely short bursts of light so intense as to be usable for freeze-frame photography of atoms and molecules under static conditions and amidst dynamic processes such as the breaking of chemical bonds.

I will attempt to give a brief description of the properties of synchrotron radiation and some examples of experimental techniques they enable. I will describe basic characteristics of accelerators optimized as light sources and free-electron lasers. I will also give an overview of light sources and free-electron lasers operating now and in planning or construction worldwide.

Coffee before seminar at 1:45 p.m.

Monday, November 12, 2012
2:00 p.m.
CEBAF Center, Room F113

Jefferson Lab

For further info, please contact Alex Bogacz at x5784 or Anne-Marie Valente at x6073