

Abstract for an Invited Paper  
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**Neutron and Synchrotron Radiation Studies for Designer Materials, Sustainable Energy and Healthy Lives**

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Probably the most prolific use of large accelerators today is in the creation of bright beams of x-ray photons or neutrons. The number of scientific users of such sources in the US alone is approaching 10,000. I will describe the some of the major applications of synchrotron and neutron radiation and their impact on society. If you have AIDS, need a better IPOD or a more efficient car, or want to clean up a superfund site, you are benefitting from these accelerators. The design of new materials is becoming more and more dependent on structural information from these sources. I will identify the trends in applications which are demanding new sources with greater capabilities.