

Biomedical Applications of Ultraviolet Free-Electron Lasers

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This review examines the possibilities for biomedical research using the three ultraviolet free-electron lasers that are nearing operational status in the United States. The projected operating characteristics of major interest in biomedical research of the free-electron lasers at Brookhaven National Laboratory, the Thomas Jefferson National Accelerator Facility, and Duke University are presented. Experimental applications in the areas of far- and vacuum ultraviolet photophysics and photochemistry, structural biology, environmental photobiology, and medical research are discussed and the prospects for advances in these areas, based upon the characteristics of the new ultraviolet free-electron lasers, are evaluated.