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Linac-Based VUV FELs - A Review

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Linac-Based VUV FELs - A Review*
ANDREW M. SESSLER, *Lawrence Berkeley Laboratory, Berkeley* (36 min)

Although no one has yet built a linac-based free-electron laser (FEL), theory says that it should be possible to do so, and that the FEL can be expected to work in a most interesting manner. A review of the theory; i.e., the state of understanding of FELs and linacs, will be given, with emphasis upon the uncertainties of the theory and upon the difficulties of achieving the required behavior of hardware. Performance expectations of VUV/FELs will be given. There are three serious projects, at Brookhaven, CEBAF, and Los Alamos, which hope to develop linac-based VUV/FELs; the general features, and parameters, of these projects will be presented. Finally, the concept of beam conditioning will be described, and the improved performance that conditioning provides will be delineated.

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