

PRACTICAL SOLUTION FOR COMPACT X-RAY FEL LASER BASED UNDULATOR.

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Abstract

It was recently suggested[1] to use a laser beam as an undulator for an ultra compact X ray FEL. There are number of challenges in realizing this very attractive approach. This paper will discuss the one related to defining and generating an adequate laser beam. Recent development of a picosecond CO2 laser at Brookhaven ATF allows considering a practical set of laser parameters that would preserve resonant condition over the saturation length of a few mm. Electron beam parameters required for such FEL would be also discussed and will show need for further high brightness beam development.

[1] Presentation by Claudio Pellegrini at 48th ICFA Advanced Beam Dynamics Workshop on Future Light Sources. March, 2010

**CONTRIBUTION NOT
RECEIVED**