



















Experimental Requirements			
Parameter	Value	Comment	
Elect	ron Beam Propertie	es	
Bunch Charge	50 pC		
Beam Energy	60 MeV		
Transverse Emittance	$< 2.5 \pi$ mm-mr	Normalized	
Bunch Length	< 5 ps	FWHM	
Energy Spread	< 20 keV	FWHM	
Pulse Repetition Rate	10 Hz		
Laser Beam	Properties (for exp	periment)	
Pulse Energy	1 mJ		
Pulse Wavelength	800 nm		
Pulse Length	0.1-10 ps	FWHM, variable	
Pulse Repetition Rate	10 Hz		
Timing jitter w.r.t. electron beam	< 1 ps		







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Large-Ma	rket Technologies
U.S. Government, projected	for 2002[1]:
Revenue:	\$2.1 trillion
DOE and NSF: 3.2+	-4.5= \$7.7 billion
Semiconductor industry, dom	nestic, in 1999[2]:
Revenue:	\$168.6 billion
R&D:	\$22 billion
Telecommunications industry	y, worldwide, proj. for 2001[3]:
Revenue:	\$1 trillion (including services)
R&D:	\$25 billion [4] (top 30)
Laser machining & welding,	\$30 billion/year \rightarrow laser diode bars
 "The Budget of the United States Government [2] "Is Basic Research the Government's Respon [3] J. Timmer, "Telecommunications Services Ir [4] "International Science Yearbook 2001", Cah 	nt, FY2002", OMB. ssibility?", Cahners Business Information, (2000). adustry", Hoover's Business Network, (2000). ners Business Information, 2001.

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