The Fourth-generation Laser for Ultrabroadband eXperiments

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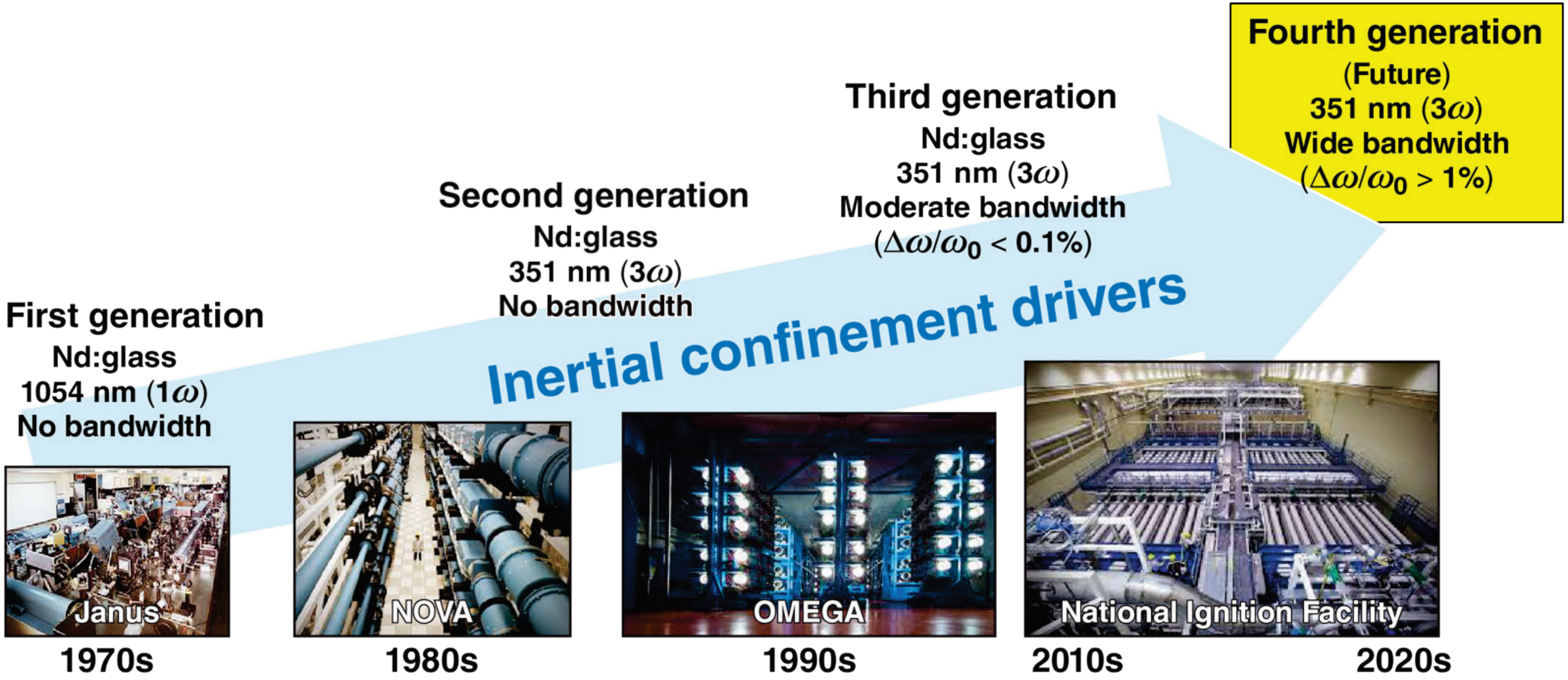

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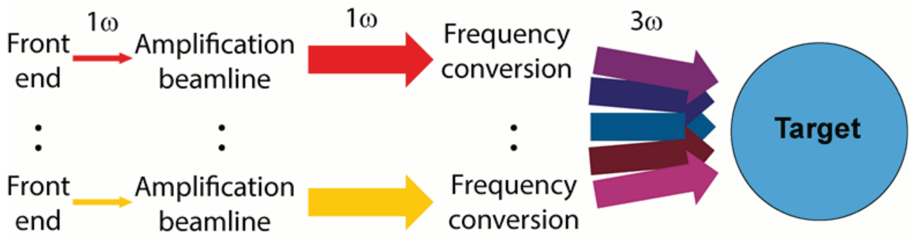
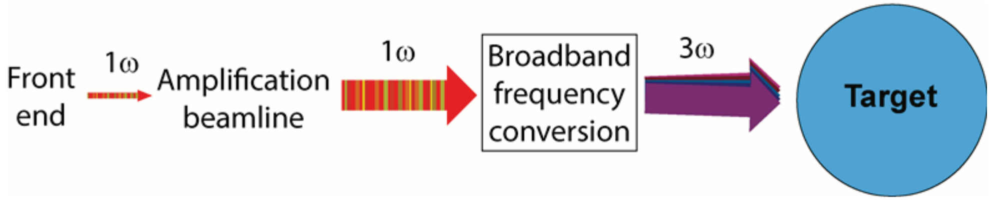
CHANGING WHAT'S POSSIBLE

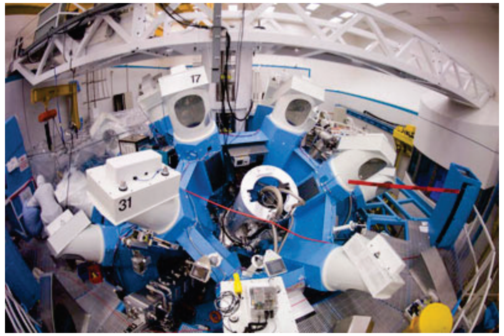
Solid-state laser drivers can produce the large fractional bandwidths required to mitigate laser-plasma instabilities

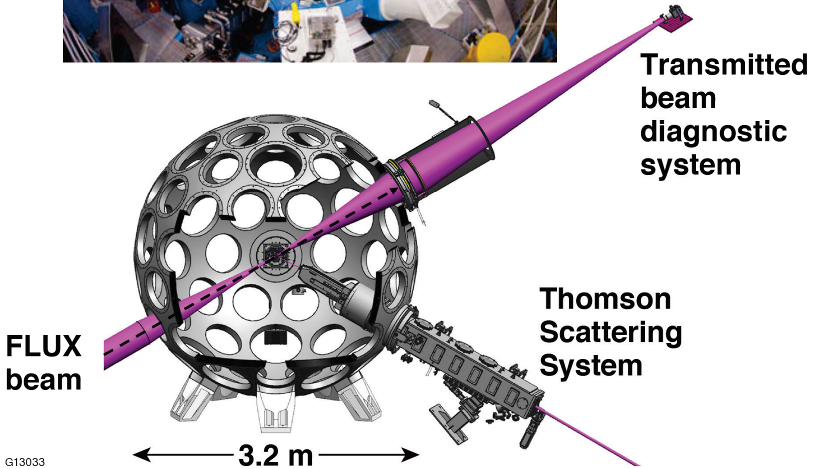
	StarDriver™	FLUX
Concept		
Number of beamlines	**1,000s (concept)**	**1 (in 2022)**
$\Delta\omega/\omega$ (total)	**2% (existing glass) 10% (new glass development)**	**1.5%**
$\Delta\omega/\omega$ (per beamline)	**0.1%**	**1.5%**

The Fourth-generation Laser for Ultrabroadband eXperiments (FLUX) is being built to investigate the mitigation of LPI and beam imprint with bandwidth

FLUX (Fourth-generation Laser for Ultrabroadband Experiments)	
Physics requirement	**Specification**
Central wavelength	351 nm (3ω)
Fractional bandwidth $\Delta\omega/\omega_0$	1.5%
Pulse duration/shape	1.5 ns/flat in time
Energy	150 J
On-target power	0.1 TW
Far-field size	Focusable to 100 μm (with distributed phase plates)
On-target intensity	10^{15} W/cm^2

OMEGA-60 target chamber





The broadband spectrally incoherent FLUX pulses will be used with the 60 narrowband OMEGA pulses to support experiments, modeling capabilities, and technology for future ICF drivers.

FLUX relies on parametric amplification and a novel sum-frequency-generation (SFG) scheme to generate high-energy spectrally incoherent UV pulses