

9

amplified beam for increasing the frequency of the amplified beam.

28. A high average power, high brightness solid state pulse laser system comprising:

- a) a mode locked Nd:YAG laser oscillator for producing a first pulse laser beam with a high pulse frequency,
- b) a pulse spacing selector means for removing from said first pulse laser beam more than 80 percent of the pulses in said in said beam to produce a second pulse laser beam comprising a series of periodically spaced high frequency pulses in excess of 1,000 pulses per second,
- c) a multiple-pass, diode pumped, Nd:YAG laser amplifier means for amplifying said expanded pulse laser beam to produce an amplified pulse laser beam with an

10

average power in the range of about 1 kW, said beam comprising high frequency pulses,

- e) a focusing means for focusing said amplified pulse laser beam to a small spot size on a target, said spot size being small enough to produce a brightness level in excess of 10^{11} W/cm².

29. A pulse laser system as in claim **28** and further comprising a beam steering means for rapidly steering said amplified pulse laser beam relative to said target so as to simulate a spot size larger than said small spot.

30. A pulse laser system as in claim **29** wherein said frequency increasing means is a harmonic generator.

* * * * *