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**Resonant absorption in micrometer and nanometer absorbing particles**[1] ESHEL FARAGGI, BERNARD GERSTMAN, Physics Department, Florida International University, Miami, Florida 33199 — Resonance effects can occur in laser absorption by micrometer and nanometer sized particles when a train of pulses is used. The pressure generated by the train of pulses may be significantly different than the pressure generated by a single pulse with the same total energy. For pulsed lasers with a gap duration between pulses that is an integer multiple of the characteristic oscillation time of the absorber, constructive interference occurs and the pressure generated inside the absorber is approximately the same as that generated by a single laser pulse. For pulsed lasers with a gap duration between pulses that is not an integer multiple of the characteristic oscillation time, destructive interference occurs and the pressure is significantly decreased. We present numerical computations comparing this effect in two model systems: 1 micrometer melanosome and a 100 nm gold absorber. The resonance effects have implications for both damage thresholds and therapeutic applications of laser radiation.

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