Application of Wheeler-Feynman Absorber Theory to Laser Power Output[1]

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Absract: Improving laser power output is proposed using Wheeler-Feynman absorber theory. A mirror is placed around a laser cavity to induce internal reflection of photons. This increases stimulated emission compared to spontaneous emission.

1. Introduction

The method described is designed to increase laser output power using a concept from Wheeler-Feynman absorber theory [1,2] and the work of Tetrode [3], where photons are modeled as sources of energy that must also have a sink (an electron) to be absorbed. According to Wheeler-Feynman and Tetrode, if an electron is not present to absorb the photon, then the photon can never be emitted. In Wheeler-Feynman absorber theory, advanced and retarded potentials resemble time-reversal equations because there must be communication faster than light between the source-photon and the sink-electron, reasoned Feynman, so that the source photon's atom would know whether to emit a photon. This enigma was resolved by Milo Wolff in his work "Exploring the Physics of the Unknown Universe" [4], where he describes the use of spherical scalar in-waves and out-waves that travel at *c* and whose local speed is based on local-mass density. The in-out waves form electrons and also allows communication between them.

2. Laser Construction

Based on these concepts it is postulated that a laser cavity can be improved by surrounding it with mirrors that reflect all spontaneous emissions from the gain medium back into the lasing cavity. If the photons have a small chance of absorption due to high internal reflection, the transition probabilities will change the preferred modes in the cavity from spontaneous to stimulated emissions. This will increase the stimulated emission rate and therefore the main beam power output.

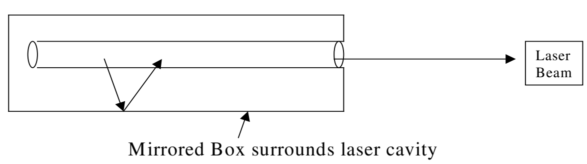

Figure 1. Mirrored-Cavity Construction

This concept is shown in Figure 1, where the mirrors surround a gas-laser tube that emits spontaneous photons, which were not originally used in lasing action. These photons are reflected back into the tube and due to a lack of other absorbers are forced to be emitted down the main axis and out the mirrored surrounding in order to be absorbed outside of the laser/mirror-cavity system.

[1] Patent Applied For.

This concept can be expanded to any laser cavity where spontaneous photons are present. The total-internal reflection of these photons increases the probability of stimulated emissions which will finally be emitted out the main axis.

3. References

[1] J. A. Wheeler and R. P. Feynman, "Interaction with the Absorber as the Mechanism of Radiation," Rev. Mod. Phys. **17**, 157-181 (1945).

[2] J. A. Wheeler and R. P. Feynman, "Classical Electrodynamics in Terms of Direct Interparticle Action," Rev. Mod. Phys. **21**, 425-433 (1949).

[3] H. Tetrode, "Über den Wirkungszusammenhang der Welt. Eine Erweiterung der klassichen Dynamik," Z. Phys. **10**, 317 (1922).

[4] Milo Wolff, *Exploring the Physics of the Unknown Universe*, (Technotran Press, 1990).