

Outline for Lasing Without Inversion SUPASTA Essay

Berke Vow Ricketti

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References

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1 Abstract (~100 words)

2 Introduction (~300 words)

In 1960, Theodore Maiman invented the world’s first experimental example of light amplification by stimulated emission of radiation, today commonly known as the laser. The light
 [1, 2, 3, 4, 5, 6, 7, 8, 9]

3 Theoretical Methodology (~750)

- 3.1 Normal Laser with Inversion 2-level system) (~250 words)**
- 3.2 Amplification without Inversion (AwI) 3-level system (~250 words)**
- 3.3 Amplification without Inversion (AwI) Multi-level system (~250 words)**

4 Experimental Confirmation (~750 words)

- 4.1 First confirmation of AwI, Zeeman coherence (~250 words)**

Nottelmann et al. 1993 [10]

- 4.2 2nd confirmation of AwI, D₁ line atomic sodium (~250 words)**

Fry et al. 1993 [11]

- 4.3 3rd confirmation of AwI, Cadmium Vapour (~250 words)**

van der Veer et al. 1993 [12]

5 Applications (~750 words)

5.1 Short wavelength lasers

5.1.1 X-ray lasers (~250 words)

5.1.2 γ - ray lasers (~250 words)

5.2 Electromagnetically Induced Transparency (~250 words)

6 State-of-the-art and Future Development (~300 words)

7 Conclusion (~100 words)

Word count: ~3050