

Diode pumped Pr^{3+} :LiYF₄ lasers emitting at 640nm and 523nm

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Abstract—In this report, a Praseodymium doped LiYF₄ (Pr:Ylf) Laser consisting of a hemispheric cavity of 50mm length and a 6mm long crystal (0.8% doping) which is pumped longitudinally. Depending on the mirror set used, the 640nm (3P_0 to 3F_2) and 523nm (3P_0 to 3H_5) lines of the Pr^{3+} -Ion can be amplified. For the red line, an OC with 1.8%T resulted in X.

Index Terms—LiYF₄ Laser, DPSS Laser, Pr:Ylf Laser

I. INTRODUCTION

Since the introduction of Lasers in 1960 by Theodore Maiman, many gain media for obtaining optical gain and therefore laser action have been introduced. One these media is LiYF₄ doped with Pr^{3+} -Ions (Pr:Ylf), which is able to operate at multiple lines, e.g. 720nm, 607nm, 640nm and 523nm, which is why special research efforts have been directed towards this material.

II. EXPERIMENTAL SETUP

III. RESULTS

IV. CONCLUSION