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Study the performance of diode laser pointer with rhodamine B
as a saturable absorber / Siti Nursyuhadah Semail.

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STUDY THE PERFORMANCE OF DIODE LASER POINTER WITH
RHODAMINE B AS A SATURABLE ABSORBER

By
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Research Report submitted in partial fulfillment of
the requirements for the degree of
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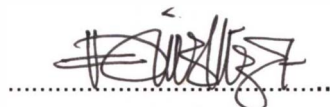
Thank you.

PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

STUDY THE PERFORMANCE OF DIODE LASER POINTER WITH RHODAMINE B AS A SATURABLE ABSORBER oleh **SITI NURSYUHADAH BINTI SEMAIL**, no matrik **UK9584** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan Ijazah Sarjana Muda Sains Gunaan (Fizik Elektronik dan Instrumentasi), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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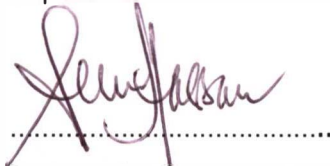
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LIST OF ABBREVIATIONS/ SYMBOLS

Abbreviations / Symbols	Fullname
Cr ⁴⁺ : YAG	Chromium: Yttrium Aluminium Garnet
V ³⁺ : YAG	Vanadium: Yttrium Aluminium Garnet
GaAs	Gallium Arsenide

ABSTRACT

A saturable absorber is an optical device that exhibits an intensity dependent transmission. What this means is that the device behaves differently depending on how intense the light that passed through it. In this study, the low power diode laser pointer was passed through a Rhodamine B solution. This solution which has a property of saturable absorber was placed outside the laser cavity. The intensity and absorbance of the output beam was observed. From the research, we find that the intensity of laser diode become more decreased with the increase of concentration but not for absorbance. Thus, Rhodamine B have a good performance as a saturable absorber but not suitable for the laser diode.

ABSTRAK

Penyerap boleh tepu adalah salah satu peranti optik yang menunjukkan sesuatu keamatan cahaya bergantung kepada pancaran cahaya tersebut. Ini bermaksud bahawa peranti ini akan memberikan perbezaan berdasarkan bagaimana cahaya tersebut melaluinya. Dalam kajian ini, laser penunjuk bertenaga rendah dilalukan ke larutan Rhodamine B. Larutan Rhodamine B ini mempunyai ciri-ciri penyerap tepu dan diletakkan di luar ruang laser. Jadi keamatan dan penyerapan bagi keluaran laser diperhatikan dan diketahui. Daripada kajian yang dijalankan, didapati keamatan cahaya laser berkurang dengan peningkatan kepekatan bagi cecair tetapi tidak bagi penyerapan cahaya.