

Re: Current Controller for Laser Diode

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Ken Smith wrote:

- > *In article <421b5997\$0\$3401\$5402220f@news.sunrise.ch>,*
- > *Rene Tschaggelar <none@none.net> wrote:*
- > *[...]*
- >
- >> *A grating and a lens doesn't cost much and are quickly mounted.*
- >> *Movement either by a piezo, or an RC servo. Yes, the antireflex*
- >> *coat is not for free but doesn't cost that much either.*
- >> *At least you can achieve single line emission under the*
- >> *gain profile of the few nm.*
- >
- >
- > *You've got my interest. How much for the needed hardware?*

The hardware is fairly cheap. You need the laser diode of yours, but on the backside, where usually the monitor is, you need an antireflex coat. A lambda quarter of calcium fluoride or such. Then you need some optics to expand the beam, An achromat or a microscope lens. Having the beam widened up, it goes as moreless parallel beam to a grating. 30\$ or so at Edmund Scientific. The grating retroreflects the wanted wavelengths back. The selection of the wavelength is the angle of the grating. This job is mainly mechanical, setting up the lot on a sturdy plate, adjusting the angles, remove hysteresis ...

Note that laser gain equation have now the lenses and the grating in it as losses. This means the lens system should accomodate for the large NA.

A longer laser cavity has less longitudinal modes and the grating is selective amongst them.

- >
- > *NIST is trying for a atomic clock that competes with the OCXOs. They've*
- > *got quite a ways to go yet on the development.*

I read some articles about that. Considering that I get an OCXO in less than half a cubic inch, running between 0 and 50degC, at

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less than a watt, for 500\$, that is quite a task.

A perhaps better newsgroup than s.e.d would be
alt.lasers or sci.optics

Rene

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Ing.Buero R.Tschaggelar - <http://www.ibrtses.com>
& commercial newsgroups - <http://www.talkto.net>