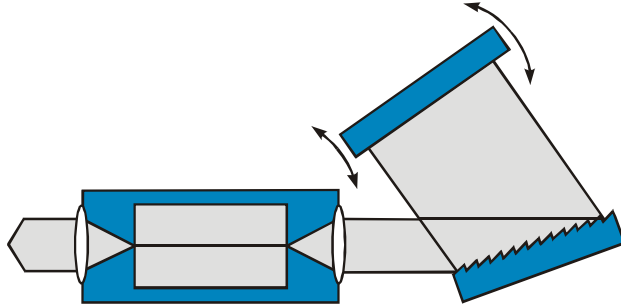


Lion Series: New Superior Littman/Metcalf Cavity Design

Sacher Lasertechnik has modified its Littman/Metcalf cavity design for improving the performance data of the tunable external cavity diode laser (3 patent applications pending).



The new Sacher design was developed for a significant improvement of conventional Littman/Metcalf laser design. We use the back facet of the diode laser chip for coupling the laser light out of the system. By this approach, we are able to design a high quality external cavity. There are no longer compromises required.

1. The strong coupling of the diode to the external cavity results in an excellent repeatability of the laser system. The side mode suppression of the laser system has drastically improved. Typical values go up more than 55dB.
2. The total tuning range as well as the mode-hop free tuning range are drastically improved.

In summary, the new Sacher design provides a major improvement in the state of the art of designing tunable external cavity diode lasers.

The new Sacher design is currently available for the 780nm .. 795nm, 820nm .. 875nm wavelength range as well as for the 1680nm wavelength regime. Major other wavelength between 730nm and 1710nm will be available during 2004. Please check the availability of your desired wavelength at <http://www.sacher-laser.com/LmnData.php>.

Document: <http://data.sacher-laser.com/techdocs/LionRedesign.pdf>
Note: Specifications are subject to change without further notice

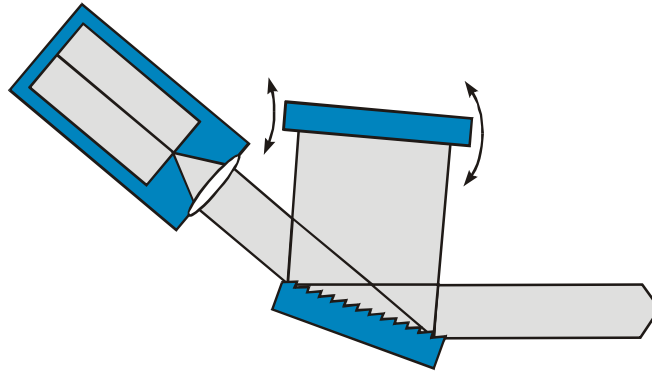
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Prior State of the Art:

This design which is commonly known from publications has several drawbacks which we overcome with our redesign:

1. In order to achieve high output power, there is the need for operating the grating in low efficiency mode.
2. The weak coupling results in a reduced repeatability on the laser system. Therefore, it is not suitable for OEM customers.
3. Application which require a good side mode suppression suffer by a poor side mode suppression in the order of 40dB of this design.

Document: <http://data.sacher-laser.com/techdocs/LionRedesign.pdf>
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