

COMPUTED NEW DESIGN OF THE COMPACT SSDPL LASER DEVELOPMENT

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It is well known, that a slab design of the active elements of solid-state lasers permits to solve the thermo-optical problem (which restrict an output power of such lasers) and to increase homogeneity of excitation of whole volume of active media. So it is very important to find out some novel resonator designs for slab lasers, especially with diode pumping. Our main idea consists in a proposal of some schemes, which use reflections from the side walls of the crystal to make a stable multipass resonator and to extract the whole energy, which are stored in the active media.

In works [1, 2] we offer a new configuration of resonators for slab lasers. It formed by 2 high-reflective coatings on lateral faces of crystals inclined one to the other under the angle α , and exterior output mirror located under the angle φ to one of them. Laser beam is propagated, alternately being reflected from each of side mirrors.

Recently we offer another configuration of resonator. It based on the double right-angle retroreflecting prism; the opposite edges of these prisms are inclined to each other under a small angle δ ; the walls between prisms are not parallel also. Any light beam getting inside of the given crystal normal to one of a surface and after a pair of reflection the angle of incidence is reduced a quantity α - so this angle is decreased from φ up to 0, then the beam will return to itself, the whole pass of beam is repeated and it gets in an initial point. The optical passes of beams are situated in 4 planes. In this paper it is considered distribution of reflectivity and loss coefficients from number of reflection and accident angle.

1. *Orlov L.* etc. The patent of Republic Belarus № 950848 from 12.05.1995.
2. *Orlov L., Zukovskij V., Necrashevich J.* // CLEO/Europe'98 Technical Digest, CWF 8, Glasgow, 14-18.09.1998. P.163.