

Process for making a custom phase-conjugated circular mirror to be used in a laser resonator that will suit specifications of a user and a custom phase-conjugated circular mirror made according to the process

A process for making a custom phase-conjugated circular mirror to be used in a laser resonator that will suit specifications of a user is provided.

The mirror reverses wavefront of one particular input beam $\phi_o(x)$ determined by the user, the input beam $\phi_o(x)$ having a given wavelength, the laser resonator including the mirror and an output coupler cooperating with the mirror and separated therefrom by a laser gain medium, the mirror being at a distance L from the output coupler.

The process comprises steps of

- (a) determining the input beam $\phi_o(x)$ that will suit need of the user;
 - (b) calculating equation of $\phi_L(x)$ which is a value of the input beam $\phi_o(x)$ that is propagated through said laser gain medium at distance L;
 - (c) calculating phase $\phi_L(x)$ of the input beam, which is a phase of the input beam $\phi_o(x)$ at distance L, the phase $\phi_L(x)$ determining profile of the custom phase-conjugated mirror; and
 - (d) fabricating the custom phase-conjugated mirror according to the profile determined in step (c), whereby a custom phase-conjugated mirror can be provided to suit the specifications of the user. There is also provided a mirror made according to the above-mentioned method.
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