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Selecting high-order modes in solid state laser resonators

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Abstract :

In recent times Laguerre-Gaussian (LG) laser beam generation has gained a lot of interest from the community because of its numerous applications. In this project we experimentally demonstrate intra-cavity generation of Laguerre-Gaussian modes of radial orders 0 – 3. The technique of using intra-cavity amplitude mask made up of absorbing rings is not new but our approach will employ the use of intra-cavity spatial light modulator (SLM) as a mode selecting element. Our goal is to select pure higher-order LG modes using intra-cavity phase and amplitude techniques, and to consider the mode purity and laser efficiency. We demonstrate that the modes are of high purity and since the mode volume is proportional to the modal order more power extraction from the cavity. Our results show a path to high brightness laser.

Award :

Yes

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Paper :

No

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