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LASER MACHINING AND MECHANICAL CONTROL OF OPTICAL MICRORESONATORS

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Abstract

We describe an invention that enables fast, reproducible, tunable, and low-cost fabrication of optical resonators. Our resonators have performance on par with the best existing optical whispering-gallery-type resonators, but our fabrication technique is dramatically simpler than all existing techniques. Our resonators are fabricated by way of CO₂-laser machining. Specifically a fused silica (or other glass) rod is rotated with a motorized spindle, and the rod is machined with a focused, high-power CO₂-laser beam. Additionally, these rod-shaped resonators enable a novel type of optical resonance frequency control with a piezo-electric transducer, which is also part of the invention.

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References

- 12-037Application

Status of Availability

This invention is available for licensing exclusively or non-exclusively in any field of use.

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