Abstracts

Gaussian-Beam Open Resonator with Highly Reflective Circular Coupling Regions

T. Matsui, K. Araki and M. Kiyokawa. "Gaussian-Beam Open Resonator with Highly Reflective Circular Coupling Regions." 1993 Transactions on Microwave Theory and Techniques 41.9 (Oct. 1993 [T-MTT] (Special Issue on Quasi-Optical Techniques)): 1710-1714.

A high-Q open resonator with new-type quasi-optical coupling regions is described. The resonator consists of a pair of spherical mirrors, on each of which a highly reflective, partially transparent circular region is fabricated with a diameter larger than several wavelengths. The signal is coupled in and out as a Gaussian beam by means of these regions. Both very weak coupling and very efficient mode conversion are simultaneously achieved. This results in a Q factor over 2 x 105 and a high signal-to-noise ratio at 105.9 GHz. The Q factor of the open resonator can be varied by rotating the output mirror to change the angle between the directions of the conducting stripes on the two mirrors.

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