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(54) **Title:** RESONATOR WITH REDUCED LOSSES

(57) **Abstract:** A device for detecting electromagnetic radiation comprises a waveguide and at least one resonator on a substrate, and a low-refractive index region between each resonator and the substrate. The low-refractive index region has a lower refractive index than a material of the resonator. The low-refractive index region may be annular, and may have a width corresponding to a width of a region in which electromagnetic radiation is concentrated in a whispering-gallery resonant mode. The low-refractive index region may be an air gap between the substrate and the resonator. The device may be a spectrometer for detecting a plurality of predetermined wavelengths of electromagnetic radiation.



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