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Silicon nanocrystal photoluminescence in cylindrical whispering gallery resonators P. BIANUCCI, Department of Physics, University of Alberta, Edmonton AB, T6G 2G7, Canada, J.R. RODRÍGUEZ, Department of Chemistry, University of Alberta, Edmonton AB, T6G 2G2, Canada, C.M. CLEMENTS, Department of Physics, University of Alberta, Edmonton AB, T6G 2G7, Canada, J.G.C. VEINOT, Department of Chemistry, University of Alberta, Edmonton AB, T6G 2G2, Canada, A. MELDRUM, Department of Physics, University of Alberta, Edmonton AB, T6G 2G7, Canada — We present photoluminescence studies of Silicon-nanocrystal (Si-NC) coated cylindrycal microcavities. The coatings were prepared by dip-coating standard optical fibers with a solution-based precursor followed by a high-temperature annealing step. The photoluminescence spectra measured perpendicular to the fiber axis show high Q-factor (∼2500) whispering gallery modes, and allows distinction between TE and TM modes. We also show a proof-of-principle implementation of a far-field refractometric sensor using a nanocrystal-coated fiber.

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