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Fabrication, characterization, and application of short photonic microcells SAJED HOSSEINI-ZAVAREH, Kansas State University, RYAN LUDER, University of Arizona, KUSHAN WEERASINGHE, MANASADEVI THIRUGNANASAMBANDAM, BRIAN R. WASHBURN, KRISTAN L. CORWIN, COSMIN BLAGA, Kansas State University — We have developed short (6-10 cm) connectorized acetylene-filled photonic microcells (PMCs') from photonic bandgap fiber (PBGF) for moderate accuracy frequency measurements. There are groups and companies that use various fabrication techniques to make long, robust, and portable PMCs for various goals. Our novel fabrication technique is appropriate for short PMCs. The gas-filled all-fiber fabrication technique creates short, compact, robust, and portable cells that can be easily integrated into small lasers and optical devices for frequency calibration. The aforementioned PMC has a moderate accuracy of 10 MHz in finding the P13 line center and is designed in such a way that can be connected to photodiodes. Finally, repeatable measurements show that the PMCs are stable in terms of total pressure for a long period of time.

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