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# Iodine vapor photonic microcell

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## Abstract:

We report on an optical fiber based iodine vapor spectroscopy cell. The formed photonic microcell (PMC) is a standalone FC/APC connectorized Iodine filled hollow core photonic crystal fiber (HCPCF) demonstrating transmission efficiency as high as 75% (1.2 dB insertion loss) and an absorption contrast reaching 70% on the P(33) 6-3 transition (i.e. ~633 nm wavelength) at room temperature. Iodine exhibits an astounding amount of transitions on the green-red spectral range. Hence, as a demonstration of its application as a frequency reference, we have generated many sub-Doppler spectral transparencies over the 631-635 range using saturated absorption spectroscopy for laser frequency stabilization.

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