of refraction variation in Pockels equation is inversely proportional to the electrodes distance, if we fabricate both electrodes in the vicinity of the photonic crystal (that is with a distance between them of 1 mm) we may expect that only 0.6V will be required for achieving the same wavelength shift of 1.2nm.

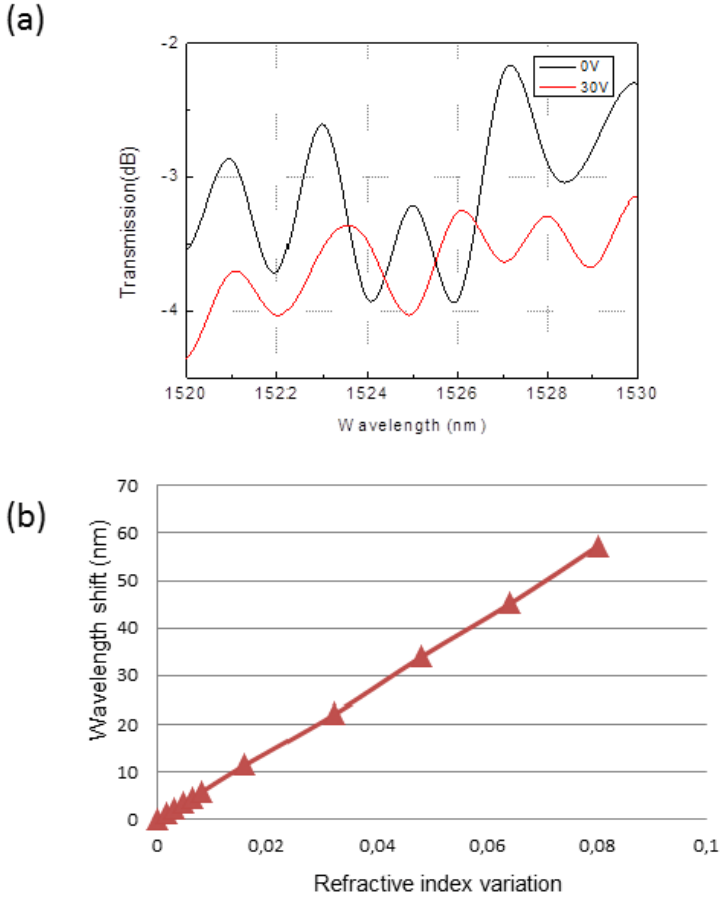

Fig. 6. (a) Experimental transmission spectrum for 0V (black line) and 30V (red line) for the transmission mode of the photonic crystal cavity. (b) FDTD calculation of the wavelength shift of the transmission band as a function of the refractive index variation.

5. Conclusion

In conclusion, we report on a 4x0.8 μm^2 enhanced electro-optical device based on a slow light lithium niobate photonic crystal wire waveguide. It can potentially shift the transmission band of 57 nm by only applying 30 V of external voltage which is due to a slow light geometry designed on a thin membrane (1 μm) of monocrystalline lithium niobate.

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