



Fig. 4. Spectral response from 1480 nm to 1550 nm of a BPLC based intensity modulator. Different curves correspond to different attenuations states.

By taking the proposed VOA as an example, the applicability of BPLC based fiber-optic devices is presented. The introduction of BPLC may impel the development of many photonic applications, from telecommunication to sensing, covering infrared to THz and even microwave regions.

4. Conclusion

In summary, we introduced BPLC into fiber-optics and a fast response VOA is demonstrated as an example. A large dynamic range over -29 dB is achieved at a comparatively low operation voltage of $37.5 V_{\text{rms}}$. All data of rise and decay time at different attenuation values are in submillisecond range. The proposed VOA has a broad bandwidth over 1480 to 1550 nm with attenuation flatness less than 0.4 dB. This may open the door to wide applications in fiber-optics with fast response.

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