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**The excel file contains experimental data for the paper “High speed all-silicon carrier accumulation modulator based on a lateral MOS-capacitor”. In particular:**

**Fig. 2(a):** Calculated change in device capacitance (in pF/mm) as a function of applied voltage.

**Fig. 2(b):** Calculated phase shift (in radian/mm) as a function of applied voltage.

**Fig. 2(c):** Calculated propagation loss (in dB/mm) as a function of applied voltage.

**Fig. 4(a):** Measured transmission spectrum of the MZI modulator with 500  $\mu\text{m}$  long phase shifter as a function of applied voltage.

**Fig. 4(b):** Measured phase modulation (in radian) and extracted modulation efficiency  $V_{\pi}L_{\pi}$  (in V-cm) as a function of applied voltage.