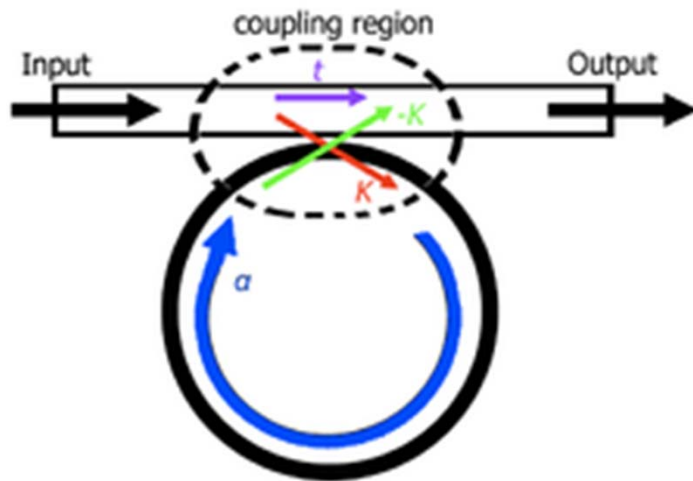
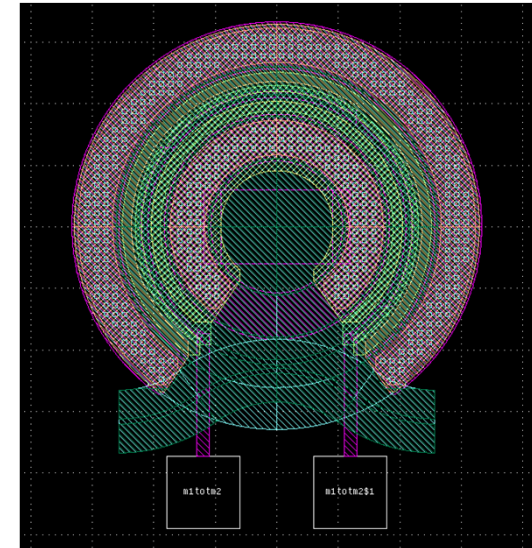


Ring Modulator and Parameter



- Optical modulator
- Small area & Low power



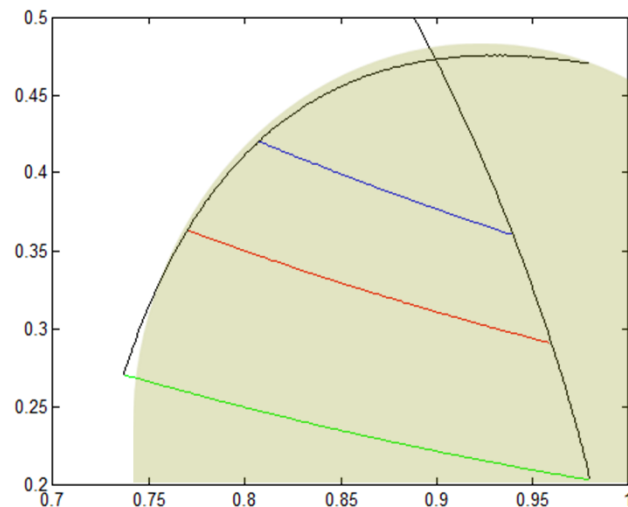
- a : loss coefficient
($a \rightarrow 1 = \text{loss} \rightarrow 0$)
- κ : Coupling coefficient
- τ : Through coefficient
- θ : Single pass phase shift
- n : Refractive index
- L : Length of ring
- λ : Wavelength of light

Parameter Optimization

- **Goal:** Physical parameter optimization by using two pole one zero system

$$|H(s)| = \left| G \frac{s+z}{s^2 + 2\zeta\omega_n s + \omega_n^2} \right|$$

<Frequency response>



< ξ vs efficiency>

