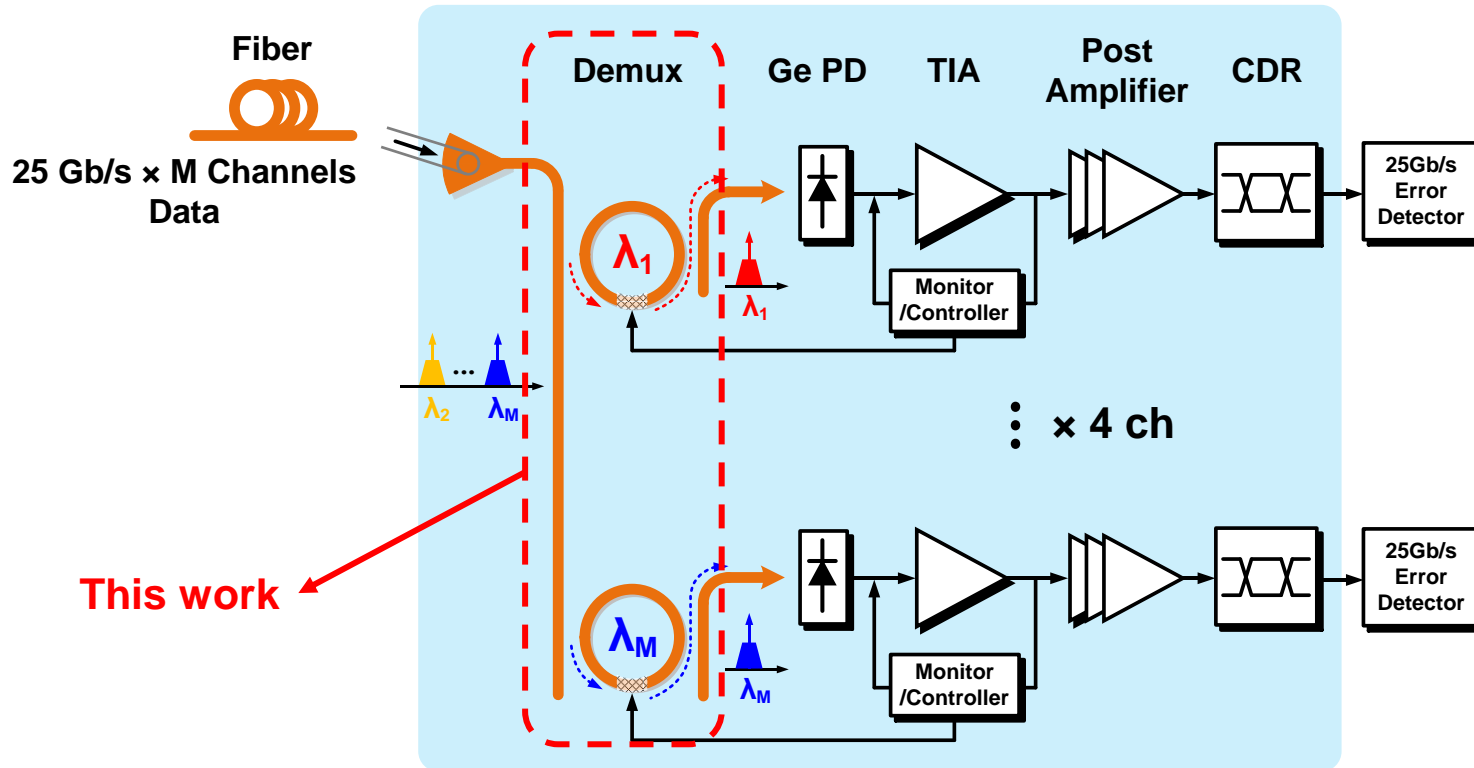


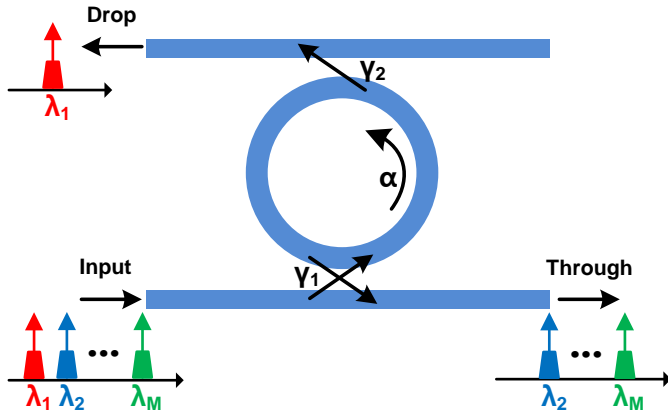
# Ring Filter Design for Si-photonic WDM Receiver

## EPIC WDM Receiver



- Demux device: Add/drop ring resonator  
→ Small footprint & controllable by drop port

# Ring Filter Design for Si-photonic WDM Receiver

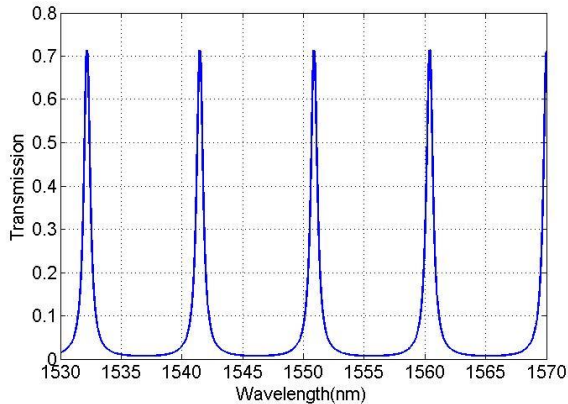


- 30-GHz BW
  - 1.5dB Insertion loss
  - Thermal tuning by doping in waveguide
- ↓
- Integration with Ge-PD & Receiver

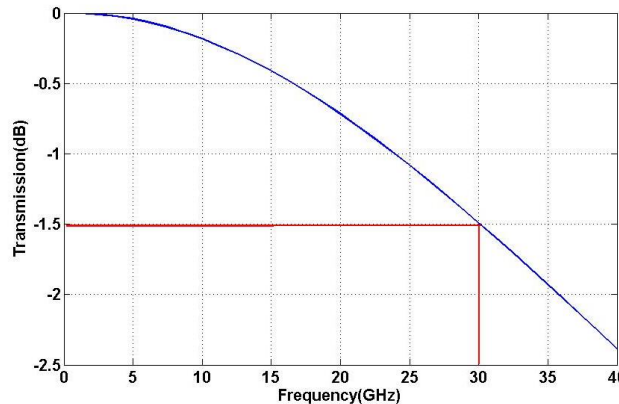
$$\frac{I_{drop}}{I_{input}} = \frac{(1 - \gamma_1^2)(1 - \gamma_2^2)\alpha}{1 - 2\gamma_1\gamma_2\alpha\cos\phi + (\gamma_1\gamma_2)^2}$$

$$\rightarrow T_{max} = \frac{(1 - \gamma_1^2)(1 - \gamma_2^2)\alpha}{(1 - \gamma_1\gamma_2\alpha)^2}$$

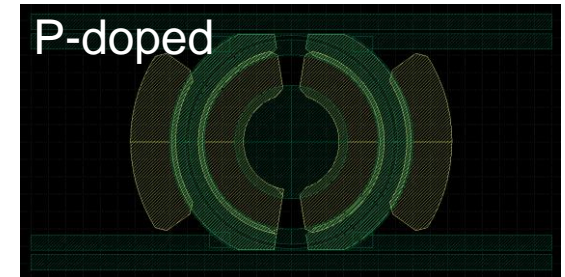
} Round-trip  
Steady-state  
Equation



<Transmission curve>



<Normalized frequency response>



<P-doped ring resonator layout>