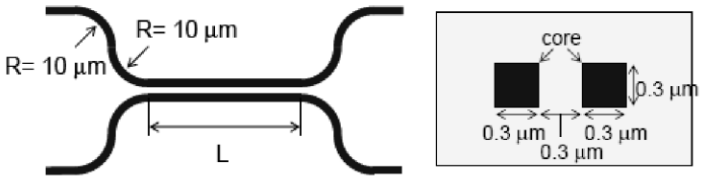
Directional Couplers

Experimental results

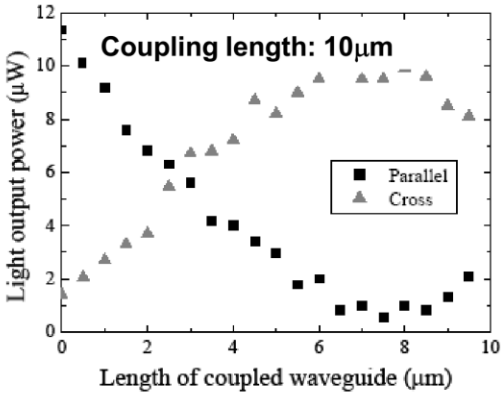
H. Yamada e.a., PTL 17, p. 585 (2005)



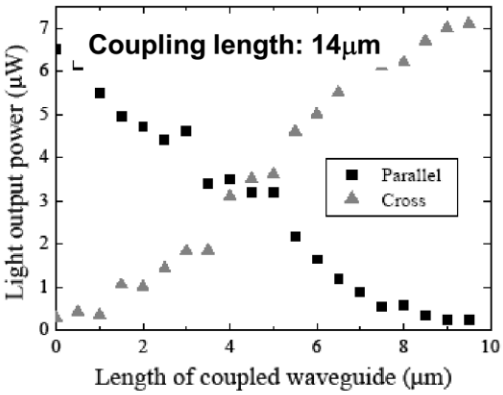
TM mode less confined

→ stronger overlap

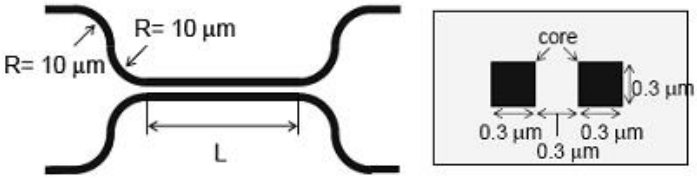
→ shorter coupling length !



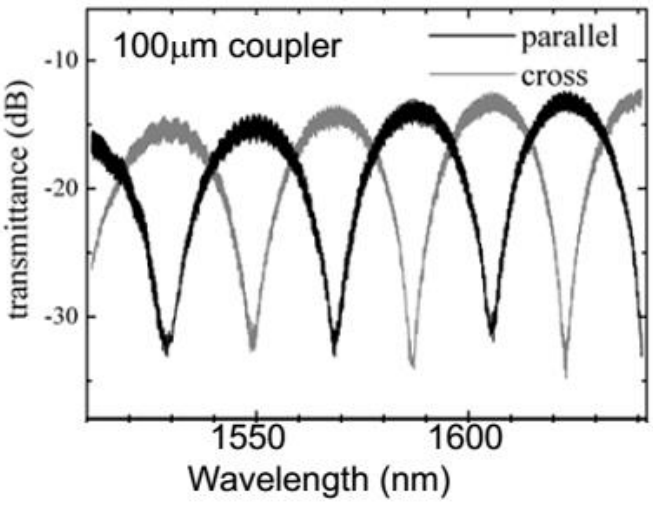
E ☐Substrate

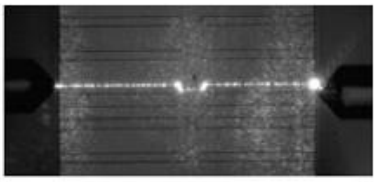


E ☐Substrate

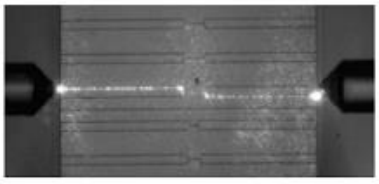


Long couplers or strongly wavelength dependent !



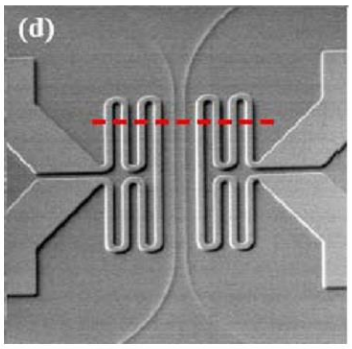


λ= 1534 nm



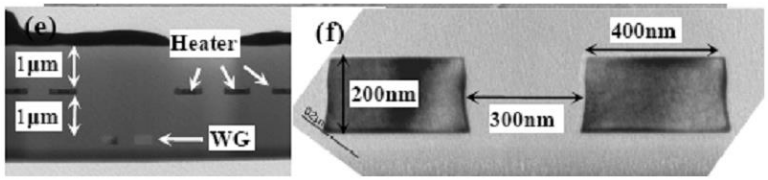
λ= 1563 nm

Fine Tuning [IEEE Photonics Technology Letters, Vol. 17, No. 3, 2005. Doi: 10.1109/LPT.2004.840926]

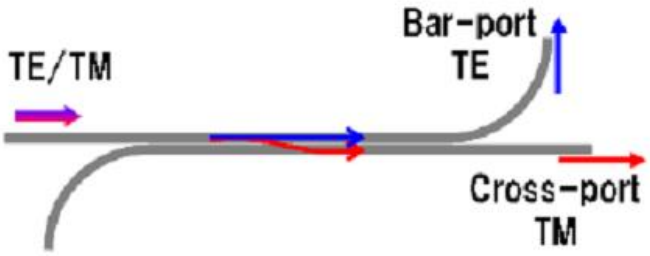


Heaters can be used to fine tuning the coupling ratio by making coupler asymmetric

Cross-section



Use as Polarization Splitter [Optics Express Vol. 14, Issue 25, pp. 12401 (2006). Doi: 10.1364/OE.14.012401]



Coupling length TM << TE