



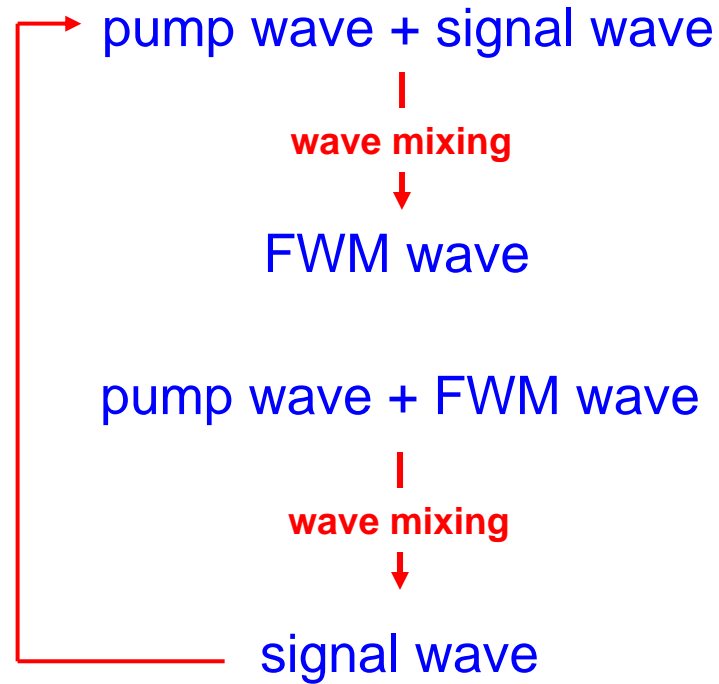
Instabilities and all-optical switching in quantum-well based semiconductor systems

Stefan Schumacher, Nai H. Kwong, Rolf Binder

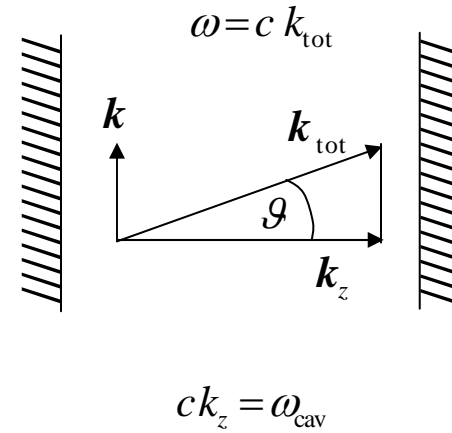
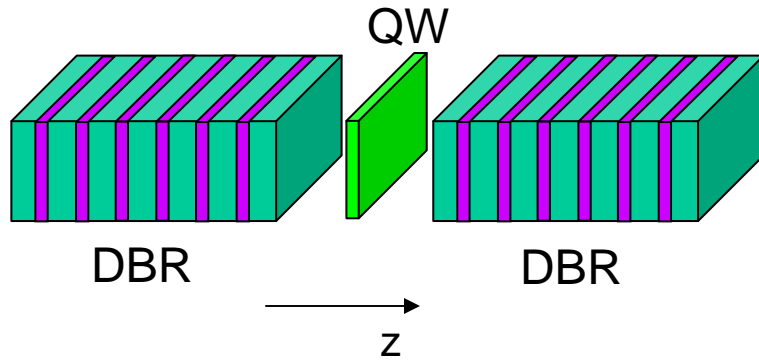
College of Optical Sciences and Department of Physics
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A. L. Smirl

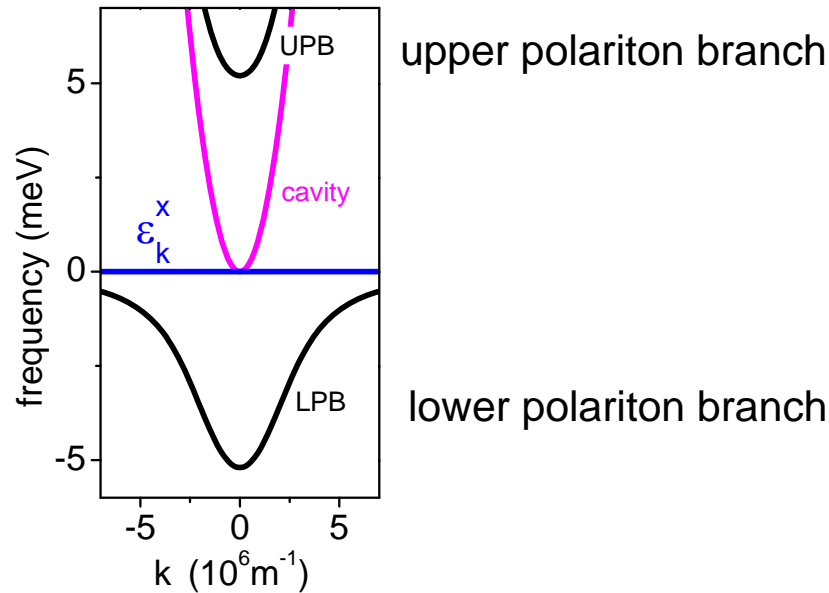
Laboratory for Photonics and Quantum Electronics
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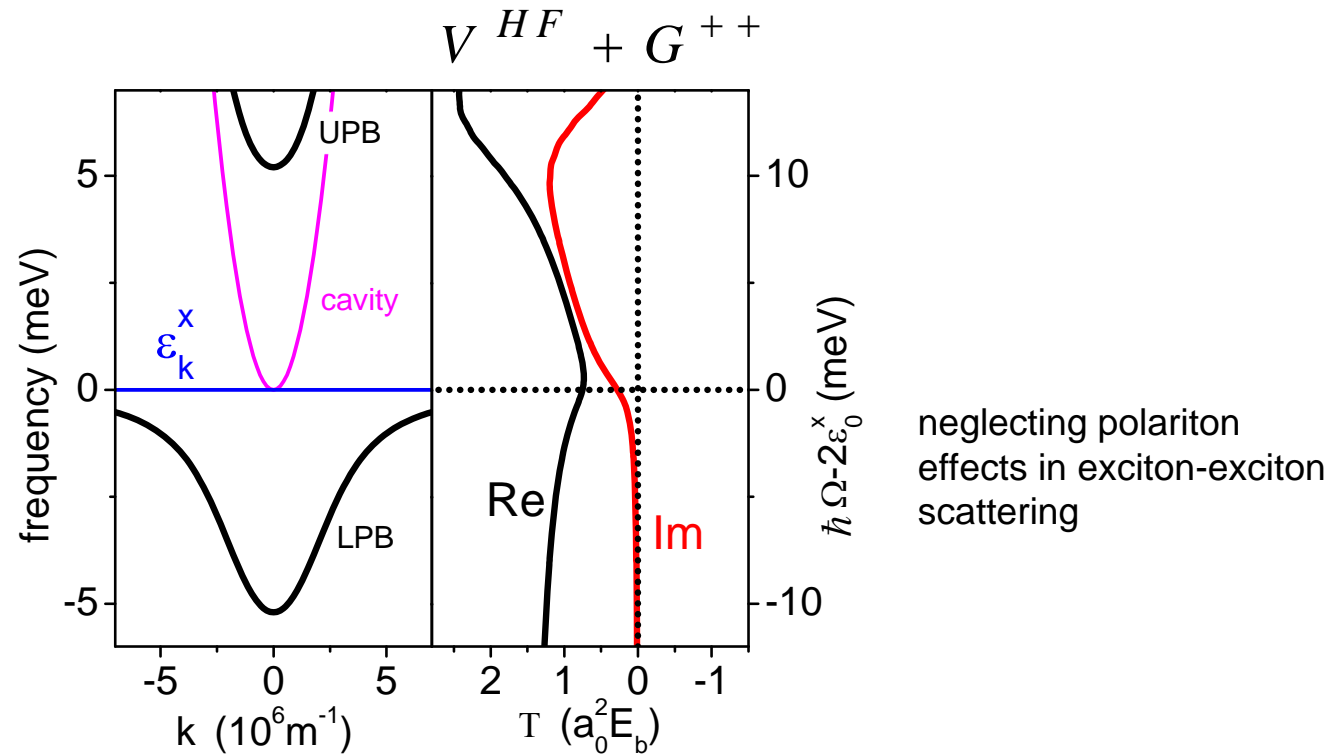


feedback and possible dynamic instability



Coupled modes:



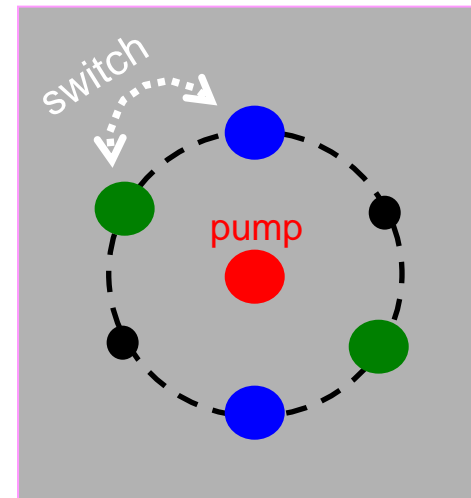
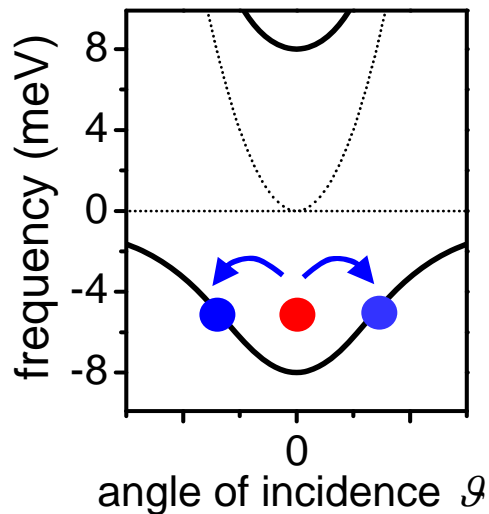
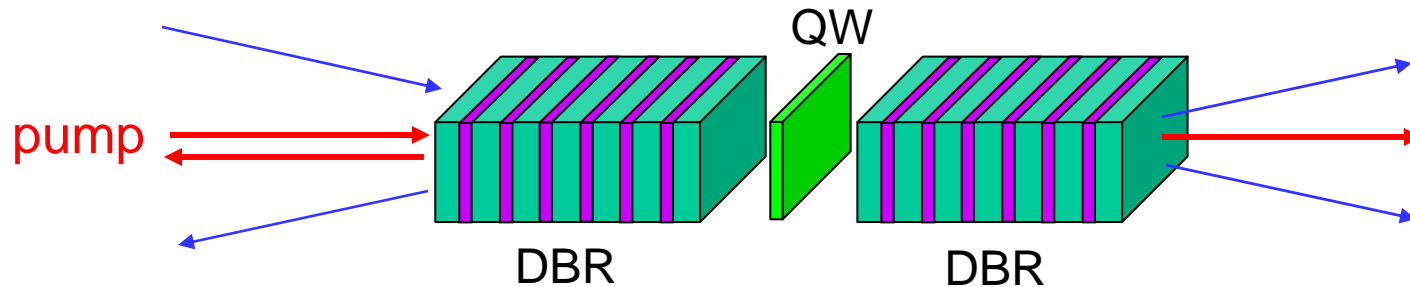


- On LPB, two-exciton correlation dominated by Hartree-Fock
- Small excitation-induced dephasing at LPB facilitates instability (in contrast to single quantum well^(*))

- Schumacher, Kwong, Binder, Phys. Rev. B 76, 245324 (2007)
- Schumacher, Kwong, Binder, Appl. Phys. Lett. 92, 131109 (2008)
- (*)Schumacher, Kwong, Binder, Europhys. Lett. 81, 27003 (2008)
- (*)Schumacher, Kwong, Binder, Smirl, Phys. Stat. Sol. (b) 246, 307 (2009)



Low-intensity directional manipulation semiconductor proposal for low-intensity switch demonstrated in Dawes, Illing, Clark, Gauthier, Science 308, 672 (2005)



- Schumacher, Kwong, Binder, Smirl, Phys. Stat. Sol. RRL 3, 10 (2009)
- Dawes, Gauthier, Schumacher, Kwong, Binder, Smirl, Laser & Photon. Rev. (2009)