

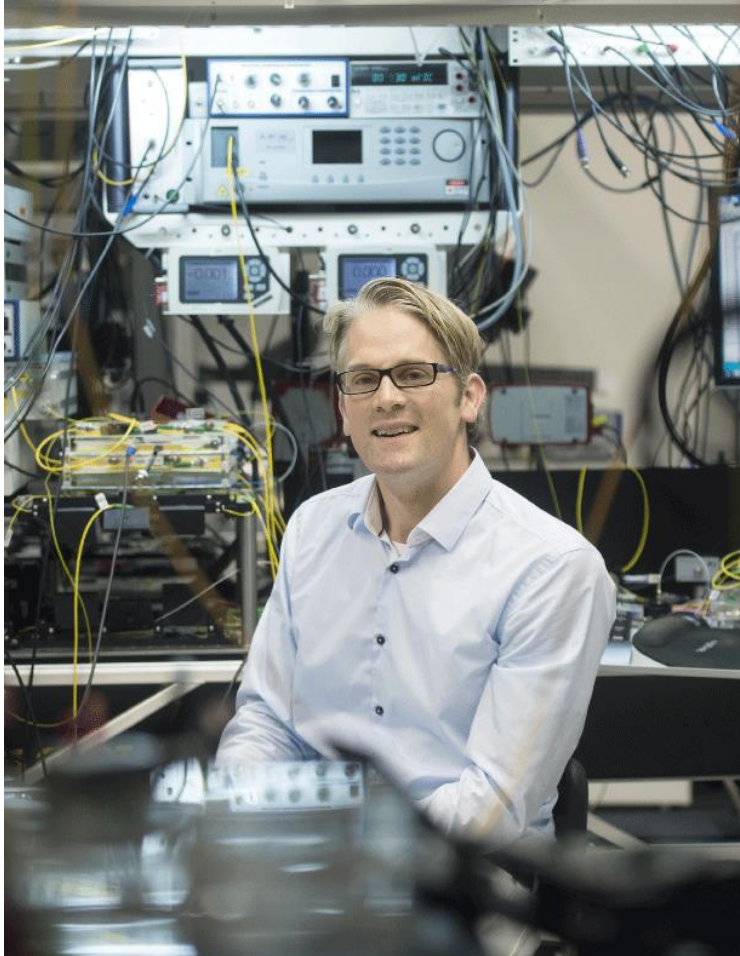
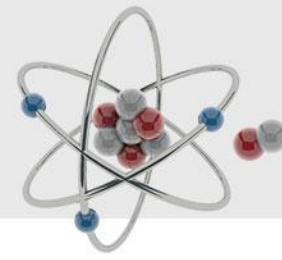
Electrically pumped photonic integrated soliton microcomb

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Tobias Kippenberg



Biography

2004: PhD, California Institute of Technology (Advisor Professor Kerry Vahala)

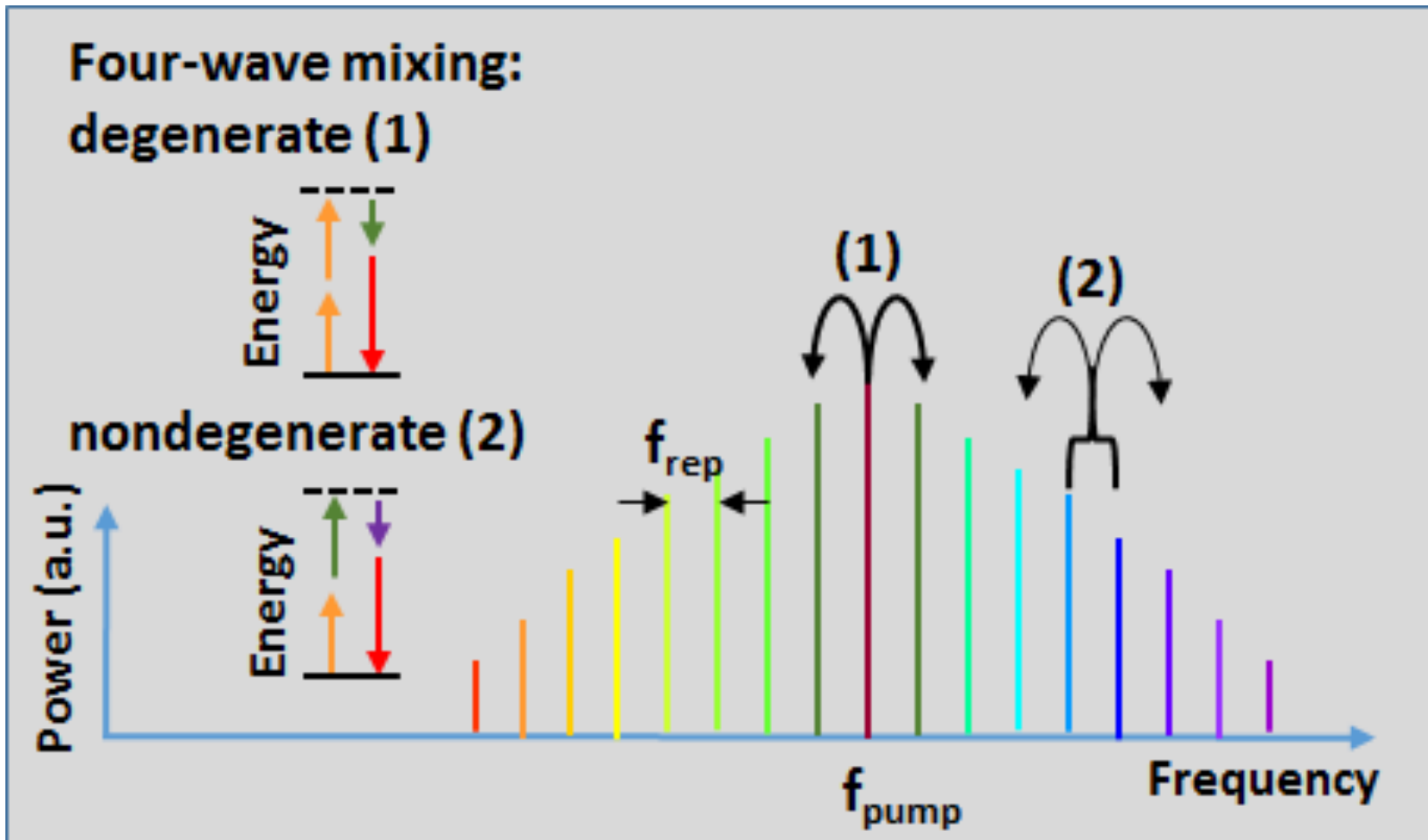
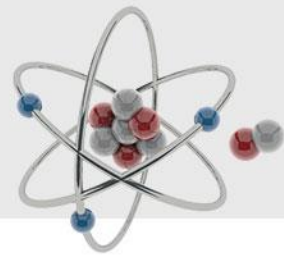
2005-2006: Postdoctoral Scholar, Center for the Physics of Information, California Institute of Technology

2013 - present: Full Professor, EPFL Laboratory of Photonics and Quantum Measurements.

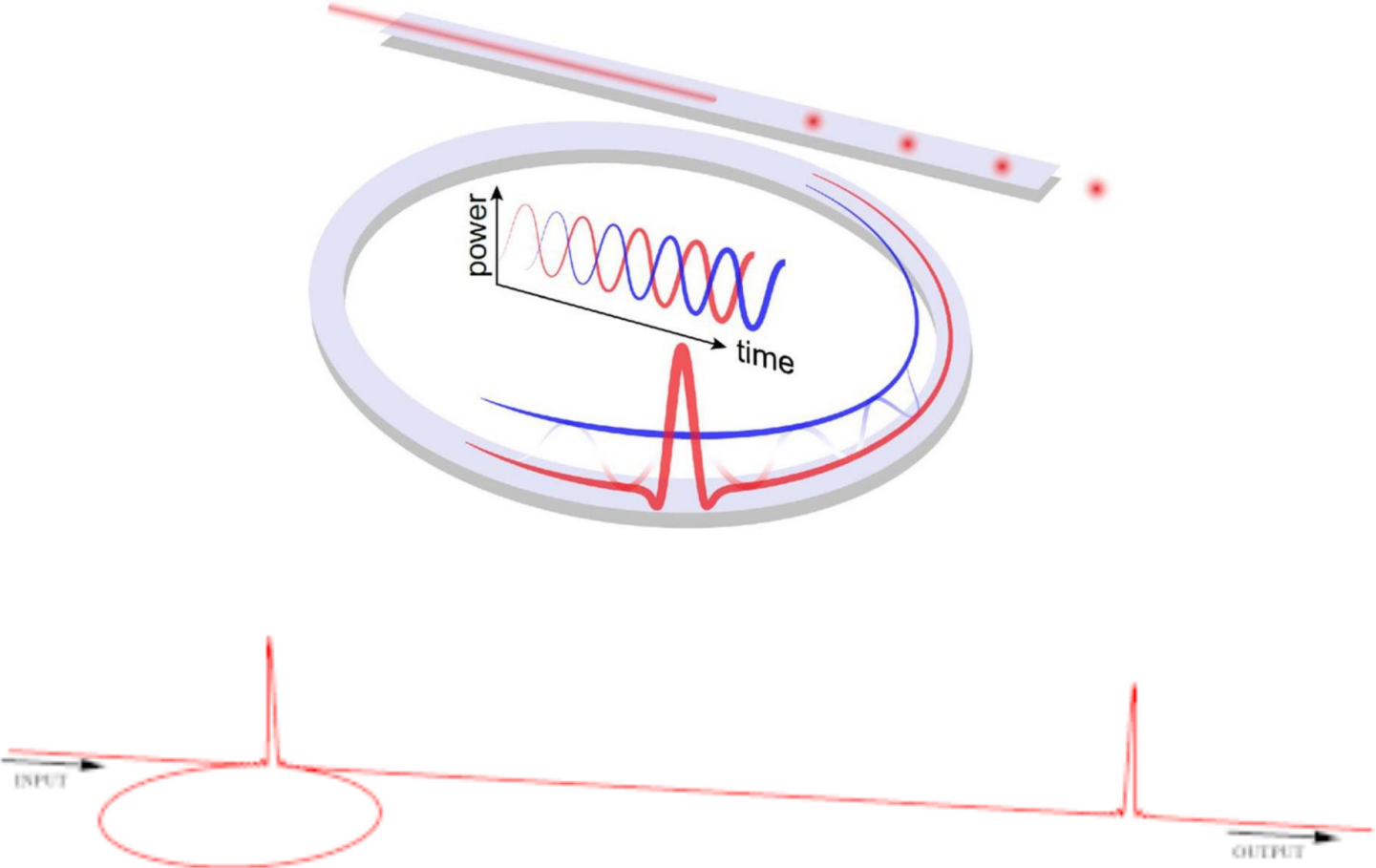
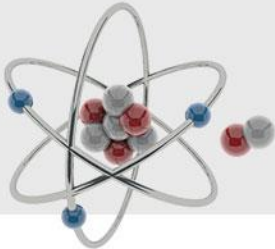
RESEARCH INTERESTS

Experimental and theoretical research in photonics, notably high Q optical microcavities and their use in cavity quantum optomechanics and frequency metrology.

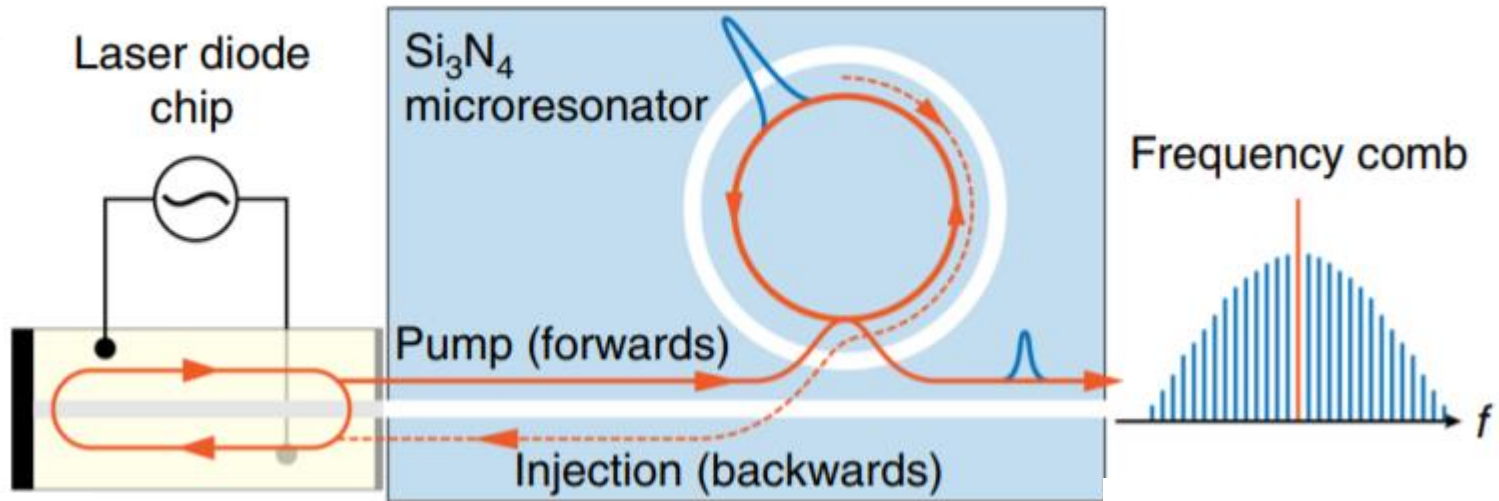
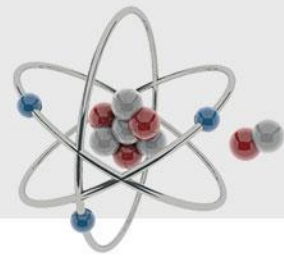
Kerr Microcomb



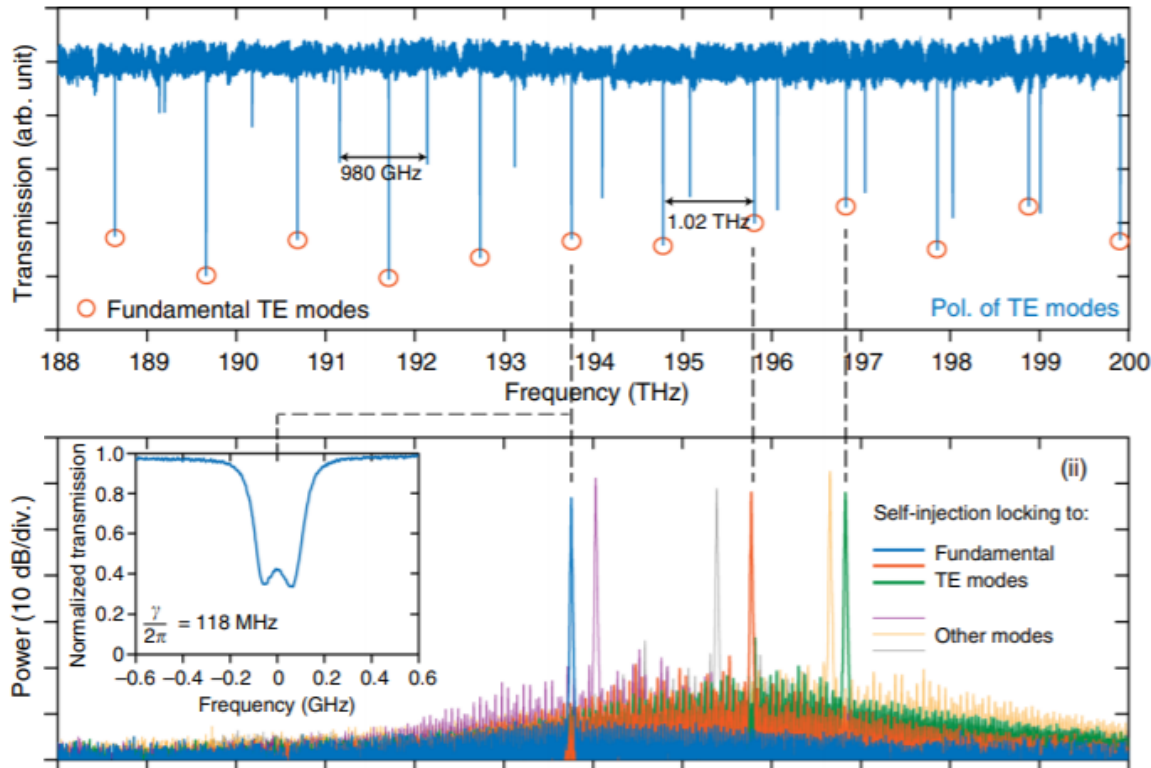
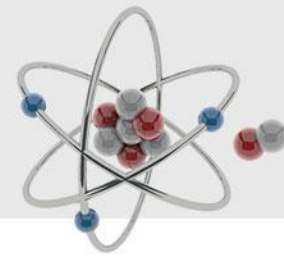
Soliton & DKS



Experimental Setup



Self-Injection Locking

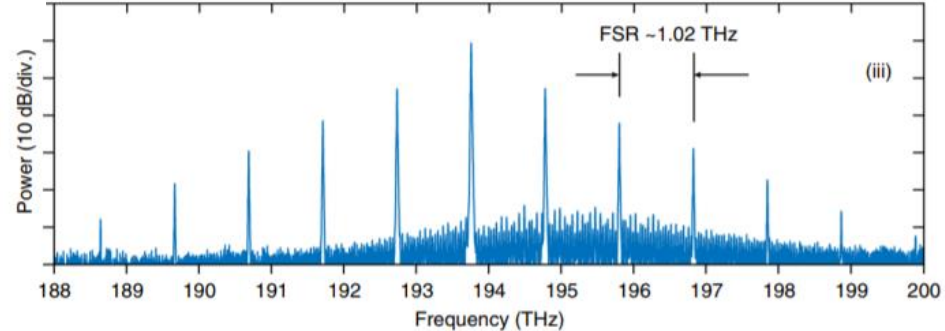
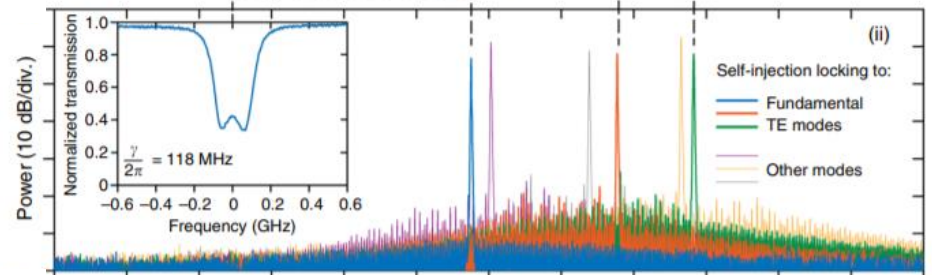
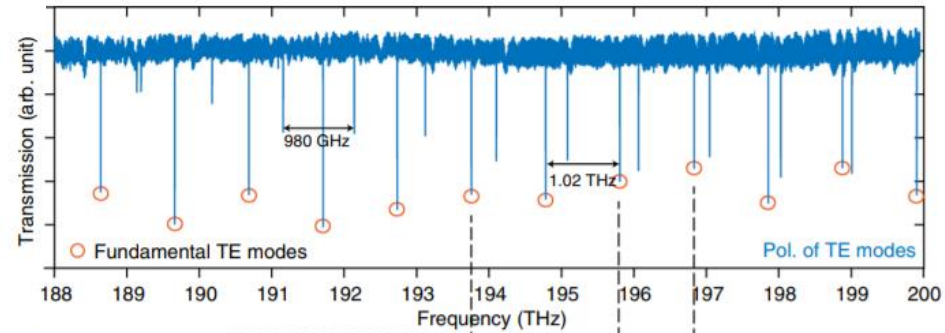
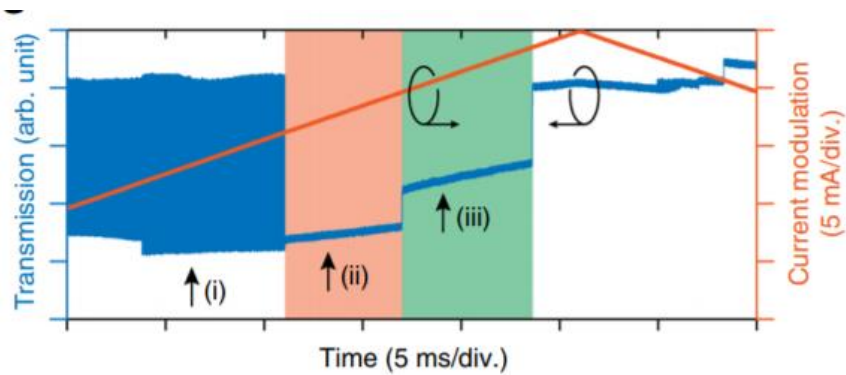
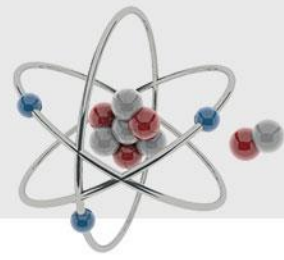


$$r \approx \frac{2\eta\Gamma}{1 + \Gamma^2}$$

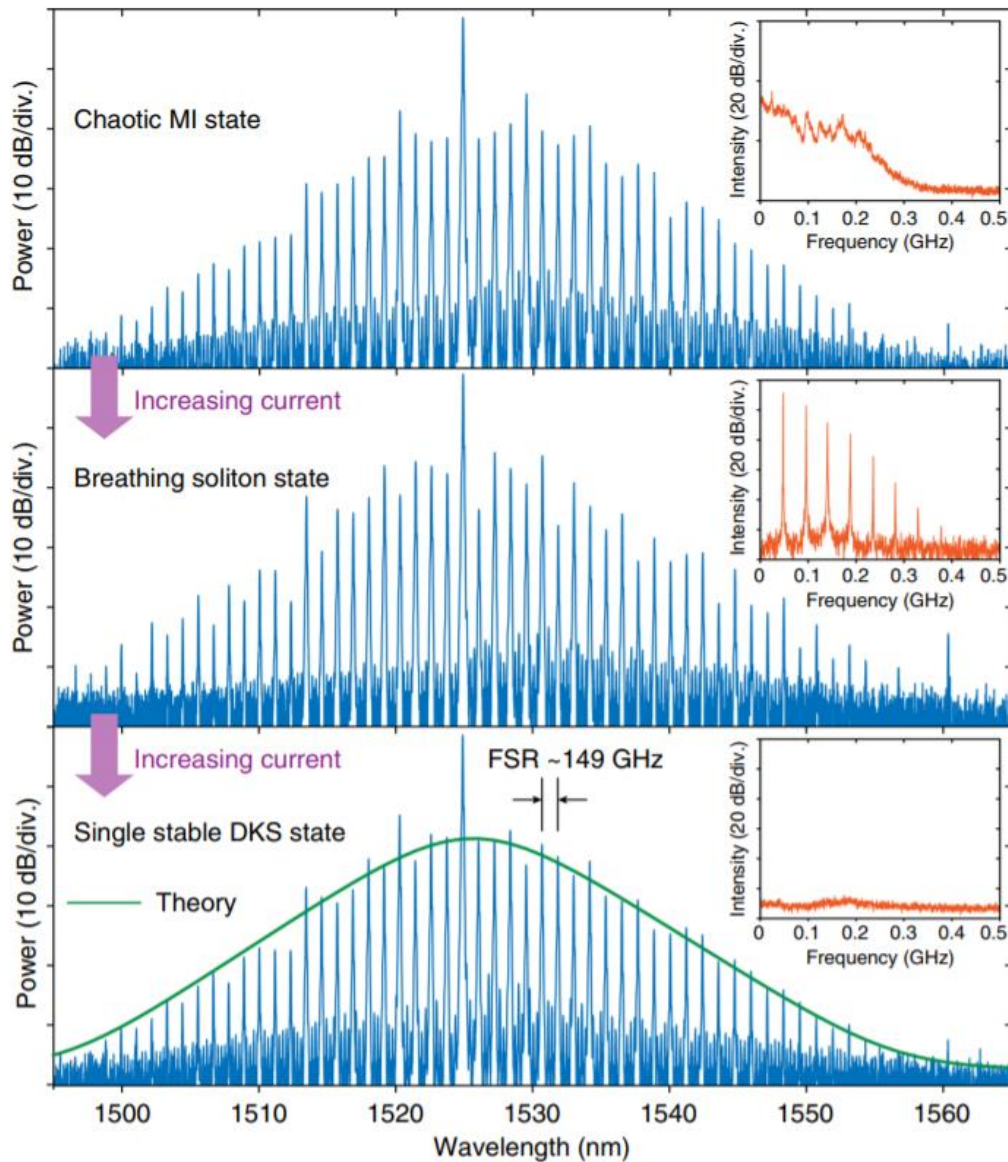
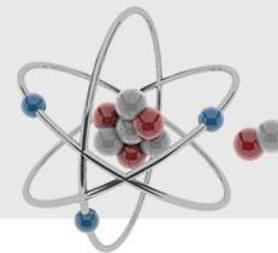
$$Q_{LD} \approx \frac{\omega\tau_d R_o}{1 - R_o^2}$$

$$\delta\omega \approx \delta\omega_{\text{free}} \frac{Q_{LD}^2}{Q^2} \frac{1}{16r^2(1 + \alpha_g^2)}$$

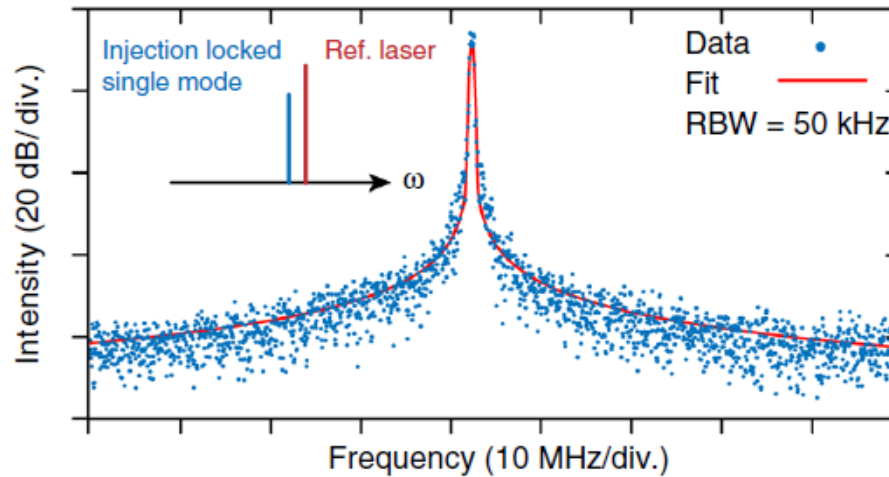
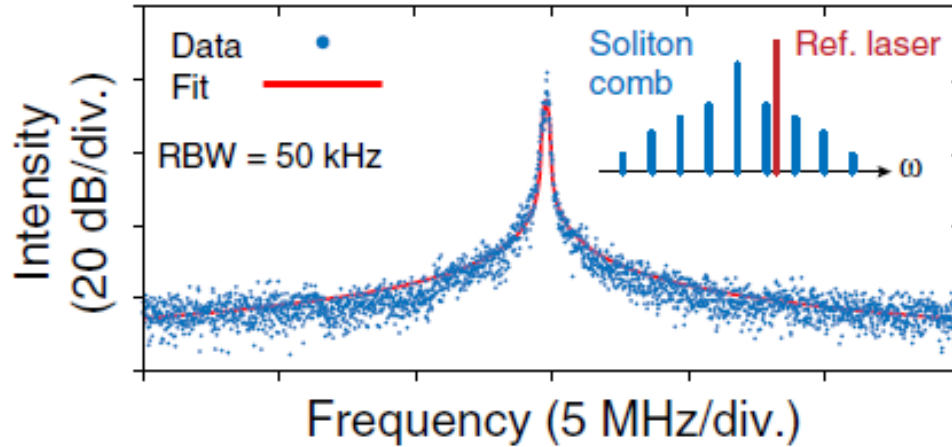
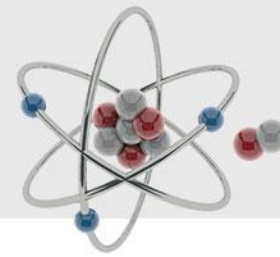
Kerr Frequency Comb Generation



DKS Formation



DKS Formation



DKS Formation

