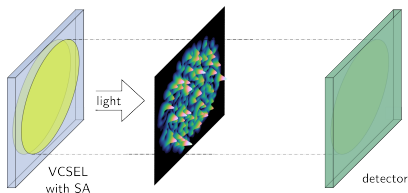


Spatio-temporal extreme events in a broad-area laser

Cristina Rimoldi¹, Stéphane Barland¹, Franco Prati², Giovanna Tissoni¹

¹Université de Nice Sophia Antipolis, Institut Non Linéaire de Nice

²Università degli Studi dell'Insubria, Dipartimento di Scienza e di Alta Tecnologia

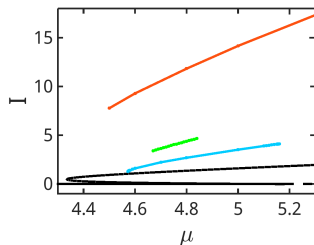


$$\dot{F} = [(1 - i\alpha)D + (1 - i\beta)d - 1 + (\delta + i)\nabla_{\perp}^2]F$$

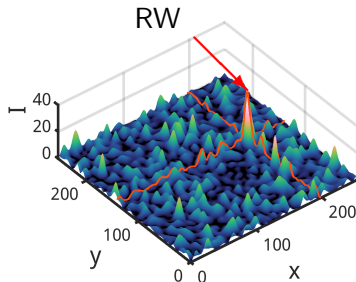
$$\dot{D} = b[\mu - D(1 + |F|^2) - BD^2]$$

$$\dot{d} = rb[-\gamma - d(1 + s|F|^2) - Bd^2]$$

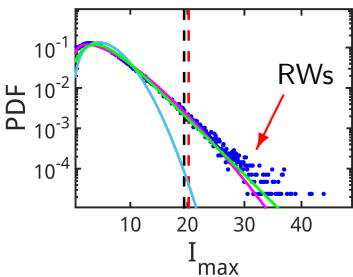
Spatio-temporal chaos



- ◆ homogeneous solution
- ◆ soliton branch
- ◆ chaoticon branch
- ◆ turbulent branch



Spatio-temporal extreme events in a broad-area laser



- ◆ RW threshold $\langle I \rangle + 8\sigma(I)$
- ◆ RW threshold $2H_s$
- ◆ Rayleigh PDF
- ◆ Weibull PDF
- ◆ Gumbel PDF

