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## Lehrstuhl für Analysis und Modellierung

**Lehrstuhl-Seminar  
Wintersemester  
2020/2021**

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### **Uniform Stability to Subharmonic Perturbations**

**19. November 2020 - 16:00**  
**WebEx Meeting**

Abstract: We study the linear dynamics of spectrally stable  $T$ -periodic stationary solutions of the Lugiato-Lefever equation (LLE), a damped nonlinear Schrödinger equation with forcing that arises in non-linear optics. It is known that such  $T$ -periodic solutions are nonlinearly stable to  $NT$ -periodic, i.e. subharmonic, perturbations for each  $N \in \mathbb{N}$  with exponential decay rates of the form  $e^{-\delta_N t}$ . However, both the exponential rates of decay  $\delta_N$  and the allowable size of initial perturbations tend to 0 as  $N \rightarrow \infty$  so that this result is non-uniform in  $N$  and is, in fact, empty in the limit  $N = \infty$ . The primary goal of this talk is to introduce a methodology, in the context of the LLE, by which a uniform stability result for subharmonic perturbations may be achieved, at least at the linear level.