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## **Dynamics of temporal and spatio-temporal localized states in time-delayed systems**

Time-delayed systems describe a large number of phenomena and exhibit a wealth of interesting dynamical regimes such as e.g., fronts, localized structures or chimera states. They naturally appear in situations where distant, pointwise, nonlinear nodes exchange information that propagates at a finite speed. In this talk, we review our recent theoretical results regarding the existence and the dynamics of temporal, spatial and spatio-temporal localized structures in the output of semiconductor mode-locked lasers. In particular, we discuss dispersive effects which are known to play a leading role in pattern formation. We show that they can appear naturally in delayed systems and we exemplify our result by studying the influence of high order dispersion in a system composed of coupled optical microcavities.

The Seminar will take place online via Zoom as part of the Oberseminar “Nonlinear Dynamics” organized by Bernold Fiedler (FU Berlin), Isabelle Schneider (FU Berlin), Eckehard Schöll (TU Berlin) and Matthias Wolfrum (WIAS). For information on how to access the event, please contact any of the above or: [henning.reinken@itp.tu-berlin.de](mailto:henning.reinken@itp.tu-berlin.de)

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