

Ultrafast Control and Rabi Oscillations of Polaritons - published in Physical Review Letters

The full control of Rabi oscillations in polaritonic semiconductor microcavities has been demonstrated and theorized by researchers of the department (D. Colas, J. P. Restrepo Cuartas, J. C. López Carreño, [E. del Valle](#) and [F. P. Laussy](#)) in collaboration with the group of Daniele Sanvitto (Lecce, Italie). These results were published in [Physical Review Letters](#).

Abstract:

We report the experimental observation and control of space and time-resolved light-matter Rabi oscillations in a microcavity. Our setup precision and the system coherence are so high that coherent control can be implemented with amplification or switching off of the oscillations and even erasing of the polariton density by optical pulses. The data are reproduced by a quantum optical model with excellent accuracy, providing new insights on the key components that rule the polariton dynamics.

