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**Dynamics of vortices in polariton quantum fluids : From full vortices, to half vortices and vortex pairs<sup>1</sup>**

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Polariton quantum fluids may be created both spontaneously through a standard phase transition towards a Bose Einstein condensate, or may be resonantly driven with a well-defined speed. Thanks to the photonic component of polaritons, the properties of the quantum fluid may be accessed rather directly with in particular the possibility of detained interferometric studies. Here, I will detail the dynamics of vortices, obtained with a picosecond time resolution, in different configurations, with in particular their phase dynamics. I will show in particular the dynamics the dynamics of spontaneous creation of a vortex, the dissociation of a full vortex into two half vortices as well as the dynamics of the dissociation of a dark soliton line into a street of pairs of vortices. Work done at EPFL by a dream team of Postdocs PhD students and collaborators: K. Lagoudakis, G. Nardin, T. Paraiso, G. Grosso, F. Manni, Y Léger, M. Portella Oberli, F. Morier-Genoud and the help of our friend theorists V, Savona, M. Vouters and T. Liew.

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