

# The acoustic signature of soap bubble bursting



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Many familiar events feature a distinctive sound : paper crumpling or tearing, squeaking doors, rain drumming on the ground or the characteristic bubbling sound of boiling water. Though hardly noticeable in our daily environment, these common place sounds carry a profusion of informations about the fleeting physical processes at the root of acoustic emission. In this talk we investigate the popping sound emitted by a bursting soap bubble seen as a paradigm of violently evolving liquid interfaces ; by making use of acoustic antennae and high speed cameras and taking advantage of aeroacoustics conceptual framework, we reveal how the forces due to capillarity, thin film flow and out-of-equilibrium dynamics of surfactants shape the acoustic signature of the bursting bubble. This study provides new informations on the forces exerted by interfaces, paving the way for a complement tool to study violent events occurring in complex, out-of-equilibrium systems such as ageing foam, rain impact, magmatic flows or crackling lungs.

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