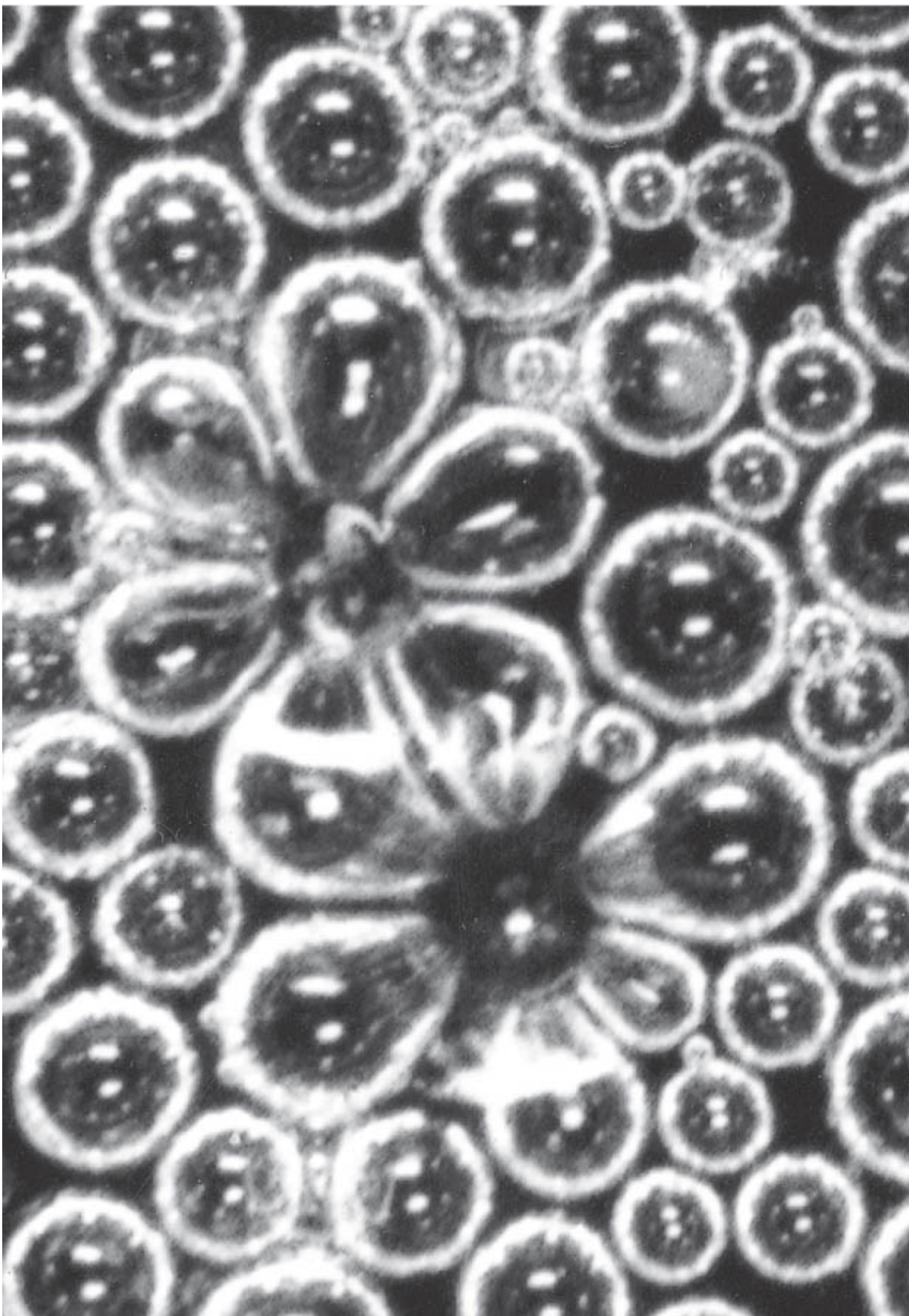


# **Champagne owes its taste to the finely tuned quality of its bubbles: scientists**

December 23 2016

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Flower-shaped structure, as frozen through high-speed photography, found during the collapse of bubbles in the bubble raft at the free surface of a flute poured with champagne. Credit: Gérard Liger-Belair

Ever wondered how the fate of champagne bubbles from their birth to their death with a pop enhances our perception of aromas? These concerns, which are relevant to champagne producers, are the focus of a special issue of *European Physical Journal Special Topics*, due to be published in early January 2017—celebrating the 10th anniversary of the publication.

Thanks to scientists, champagne producers are now aware of the many neuro-physico-chemical mechanisms responsible for aroma release and flavour perception. The taste results from the complex interplay between the level of CO<sub>2</sub> and the agents responsible for the aroma—known as volatile organic compounds—dispersed in [champagne bubbles](#), as well as temperature, glass shape, and bubbling rate.

In the first part of the Special Topic issue, Gérard Liger-Belair from CNRS in Reims, France, has created a model to describe, in minute detail, the journey of the gas contained in each bubble. It starts from the yeast-based fermentation process in grapes, which creates CO<sub>2</sub>, and goes all the way to the nucleation and rise of gaseous CO<sub>2</sub> [bubbles](#) in the champagne flute. It also includes how the CO<sub>2</sub> within the sealed bottle is kept in a form of finely tuned equilibrium and then goes into the fascinating cork-popping process.

The second part of this Special Issue is a tutorial review demystifying

the process behind the collapse of bubbles. It is mainly based on recent investigations conducted by a team of fluid physicists from Pierre and Marie Curie University, in Paris, France, led by Thomas Séon. When a [champagne](#) bubble reaches an air-liquid interface, it bursts, projecting a multitude of tiny droplets into the air, creating an aerosol containing a concentration of wine aromas.

**More information:** G. Liger-Belair and T. Séon (2017), Bubble Dynamics in Champagne and Sparkling Wines: Recent Advances and Future Prospects, *European Physical Journal ST*, [DOI: 10.1140/epjst/e2017-02677-8](#)

G. Liger-Belair (2017), Effervescence in champagne and sparkling wines: From grape harvest to bubble rise, *European Physical Journal ST*, [DOI: 10.1140/epjst/e2017-02678-7](#)

T. Séon and G. Liger-Belair (2017), Effervescence in champagne and sparkling wines: From bubble bursting to droplet evaporation, *European Physical Journal ST*, [DOI: 10.1140/epjst/e2017-02679-6](#)

Provided by Springer

Citation: Champagne owes its taste to the finely tuned quality of its bubbles: scientists (2016, December 23) retrieved 2 May 2024 from <https://phys.org/news/2016-12-champagne-finely-tuned-quality.html>

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