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**Coalescence of soap bubbles: petals and fractals** BENG HAU TAN, SILVESTRE ROBERTO GONZALEZ AVILA, CLAUS-DIETER OHL, Nanyang Technological University — The coalescence of thin film bubbles, i.e. soap bubbles, is determined by successive ruptures of the two films approaching each other. Ruptures in isolated thin films have been studied experimentally in detail and their dynamics is well understood theoretically; less so for the coalescence of soap bubbles. In this case, the film rupture occurs in very close proximity to a second film. The interaction between one quickly retracting film with a stationary film leads to complex dynamics. High-speed photography of the events occurring on a microscopic scale is conducted. We find that within the first 100 microseconds radially symmetric fingering and fractal structures are created at the rupture site. The first film retraction may induce the rupture of the second film. Later the retracting soap film causes the entrainment of a ring of secondary bubbles and possibly droplets along its circumference. Some first modelling will be presented, too.

Beng Hau Tan  
Nanyang Technological University

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