**Supplementary information**

**‘Puffing’ in Sarcoscypha austriaca: back to Ziegenspeck**

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**SUPPLEMENTARY INFORMATION**

Movie 1: Movie1\_Puffing\_Saustriaca.mp4. Two fruitbodies of *Sarcoscypha austriaca* in a Petri dish. The lid is quickly removed, which, after a delay of less than a second, is followed by large spore puffs. Note also the motion of especially the foremost fruitbody.

Movie 2: Movie2\_Puffing\_Saustriaca.gif. Top view on the hymenium of a single fruitbody of *Sarcoscypha austriaca*. The monochrome frames are displayed in a false color scale (intensity map indicated at the bottom); they represent the pixel-by-pixel difference between the frame recorded at the indicated time stamp and a 5-frame average recorded just before time zero. (Original movie recorded at 20 kHz, effective frame rate of this movie is 4 kHz.)

Movie 3: Movie3\_Puffing\_Saustriaca.gif. Top view on part of the hymenium of a single fruitbody of *Sarcoscypha austriaca*. A thin light sheet from a blue cw diode laser passes just above the hymenium; some stray light hits parts of the rather uneven surface, causing the structure in the upper left and right of the images. The frames recorded at t<0 (far before the start of the spore puff) give an impression of the background. The images recorded at t>0 show red speckles, corresponding to individual particles (presumably spores) crossing the light sheet. They occur at random locations. (Frame rate of original movie and playback is 100 kHz.)

Movie 4: Movie4\_Puffing\_Saustriaca.gif. Close-up of a sectioned fruitbody of Sarcoscypha austriaca. The object plane lies slightly behind the plane of the section; estimated depth of field is 3 mm. The red line indicates the hymenium surface, the fruitbody is below. The movie shows individual asci ejecting their contents. Note that the ejections take place randomly over the surface, and in various directions, not necessarily perpendicular to the surface; they are sometimes more brush- than jet-like. (Frame rate of original movie and playback is 40 kHz, but this movie is just a selection of representative events.)

Movie 5: Movie5\_Puffing\_Saustriaca.gif. A single fruitbody of *Sarcoscypha austriaca*, producing a spore puff. The red vertical line indicates the location of the fruitbody’s upper left rim. (Original movie recorded at 10 kHz, effective frame rate of this movie is 100 Hz.)

Movie 6: Movie6\_Puffing\_Saustriaca.gif. A single spore discharge event, ejecting spores in a spray rather than a jet. Recorded @ 100 kHz frame rate, through a 10x microscope objective; the full width of the image corresponds to slightly more than 2 mm.