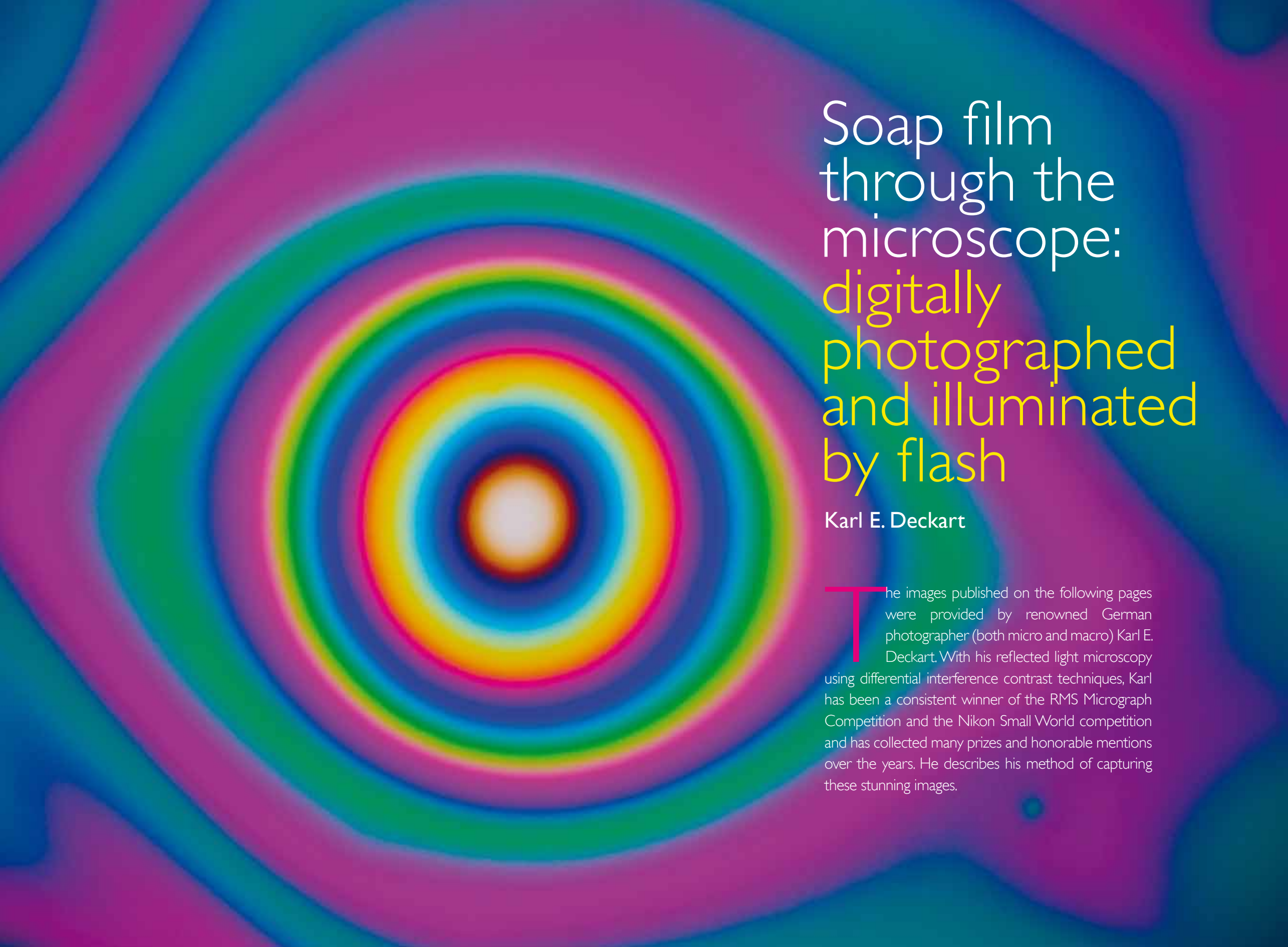




Soap film through the microscope: digitally photographed and illuminated by flash

Karl E. Deckart

The images published on the following pages were provided by renowned German photographer (both micro and macro) Karl E. Deckart. With his reflected light microscopy using differential interference contrast techniques, Karl has been a consistent winner of the RMS Micrograph Competition and the Nikon Small World competition and has collected many prizes and honorable mentions over the years. He describes his method of capturing these stunning images.

A soap film is an always moving object which makes a strobe light necessary.

As good as the digital single lens reflex (SLR) camera is nowadays, most of the time they still have no means to control an external strobe. Therefore, bracketing series have to be taken to reach a correct exposure. This statement for general photography is also mandatory for photomicrography.

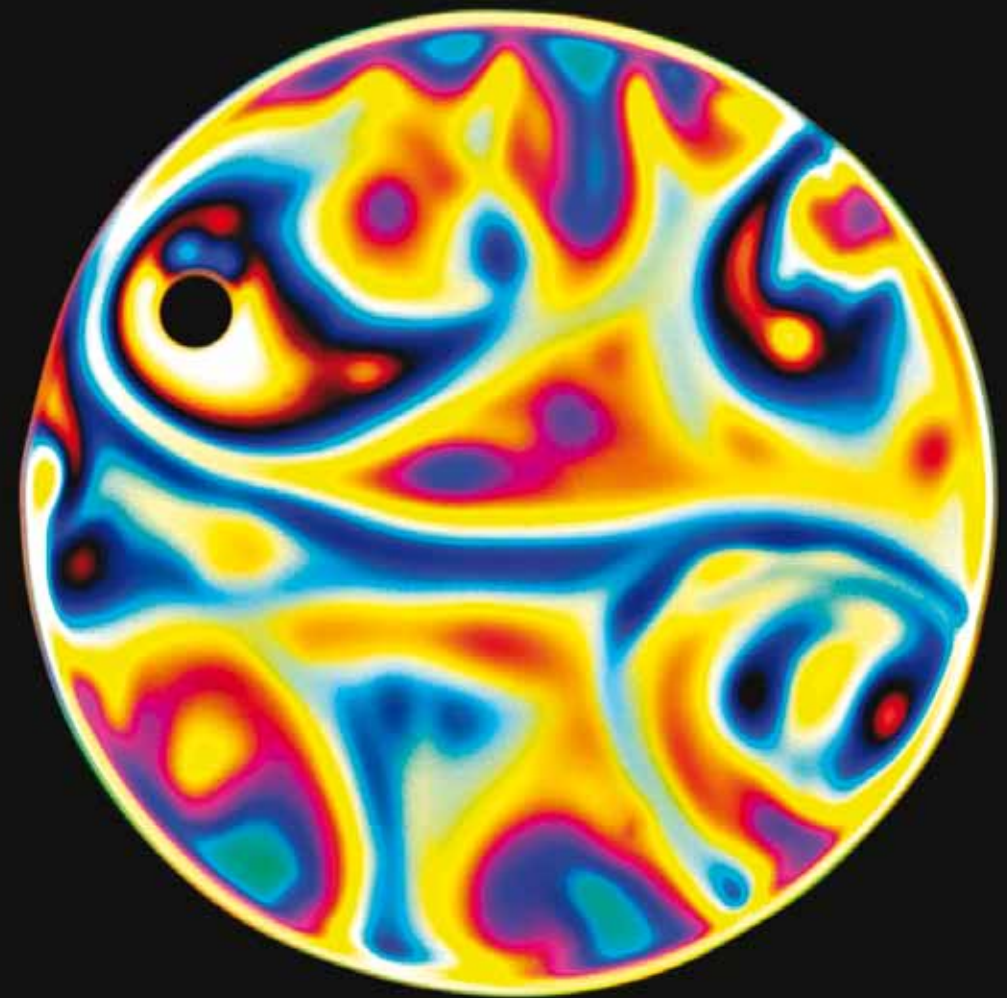
I am very familiar with taking pictures of soap film in the macro field M1:1 on 4 x 5 inch sheet film regarding formulas and characteristics. Out of this, the desire to capture soap film pictures using the microscope was born. Here the same conditions apply: suitable formula, moving colours, short life of the soap films, bracketing and all other difficulties of photomicrography. In addition, one has to know that the colours of a soap film only appear in their

extraordinary beauty under illumination by total reflection and because of its steady movement, one has to use a strobe. The microscope has to be set to reflecting light mode.

The Nikon-OPTIPHOT is one of the best construction kits and although it is approximately 25-years-old, it adapts to the newest digital SLRs. To bring in the strobe light, a double condenser system has to be attached with an integrated strobe.

A soap film is an always moving object which makes a strobe light necessary, but to observe and focus, one also needs a steady illumination. The Nikon control unit and transformer supplies the steady illumination, controls the vibration free internal leaf shutter of the microscope and triggers the external strobe via an X-synchronising connection.

Neither the SLR's sensors nor the control unit sensors are able to measure the strobe's intensity.

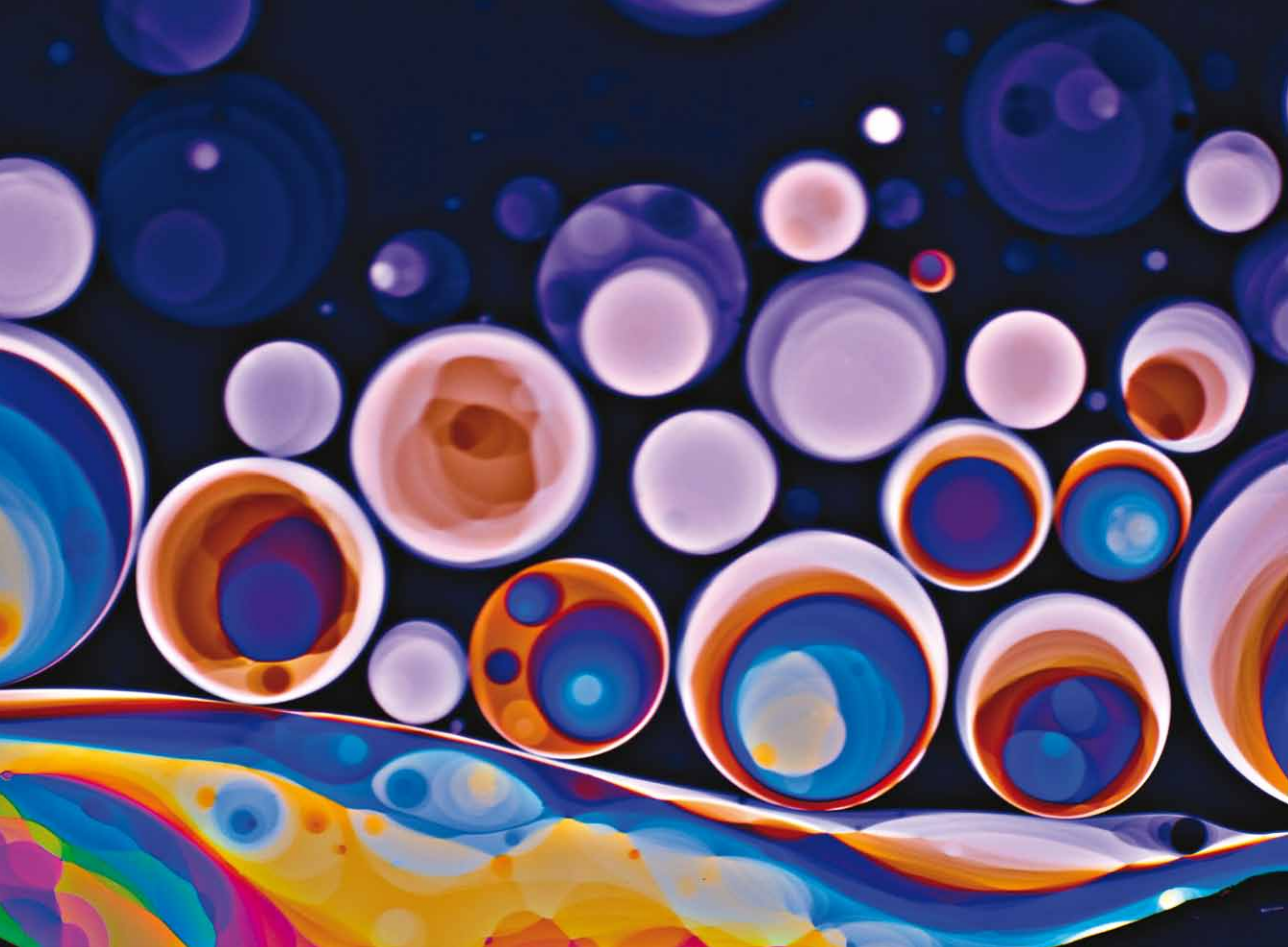


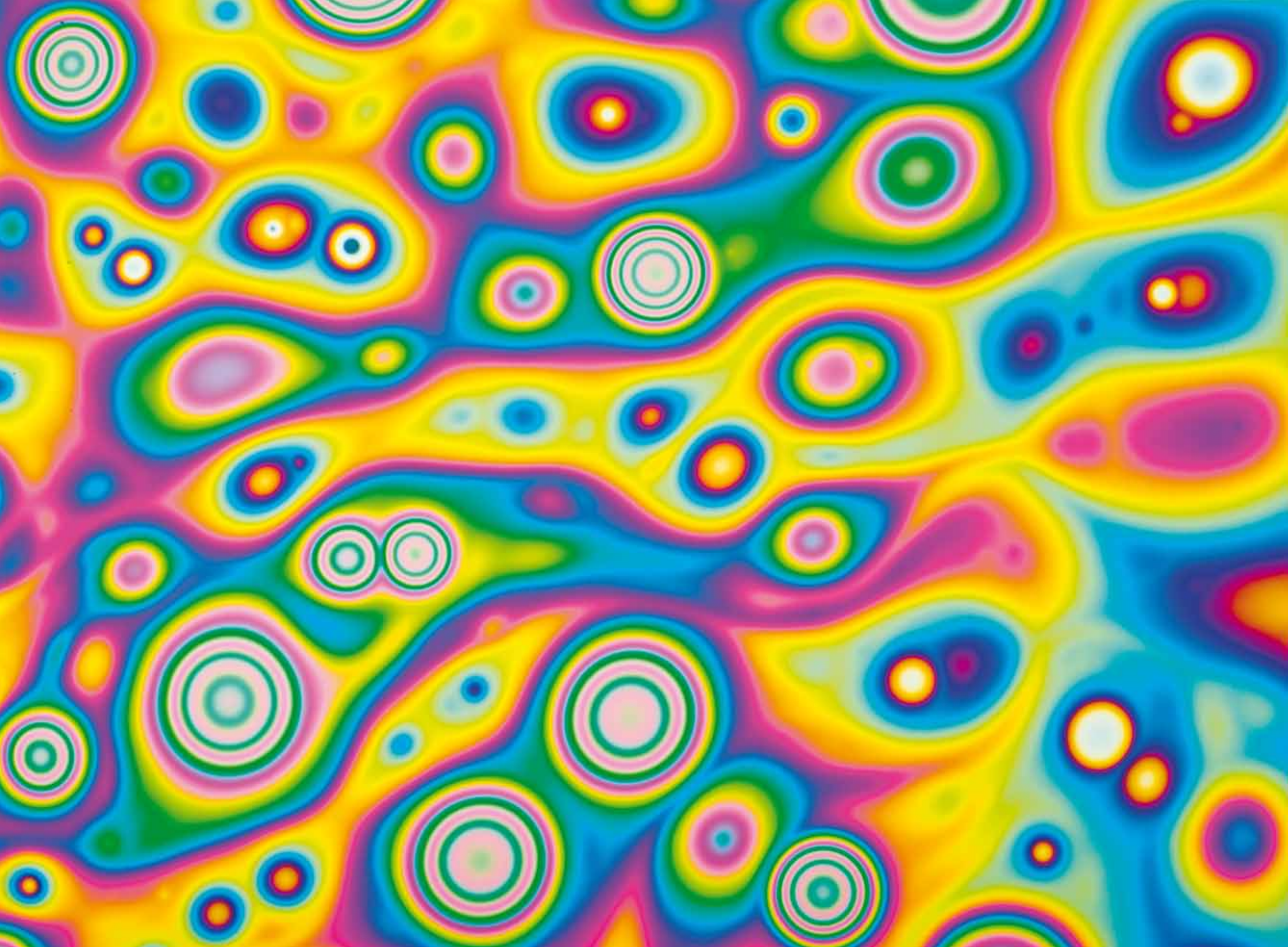
My strobe cannot be set to different steps so it has to be shut only in the full power mode. Grey filters are used to reduce the powerful strobe light and produce the desired exposure. The observing light is set according to 2000 ASA, which causes the dim internal light to have no effect in combination to the intense strobe.

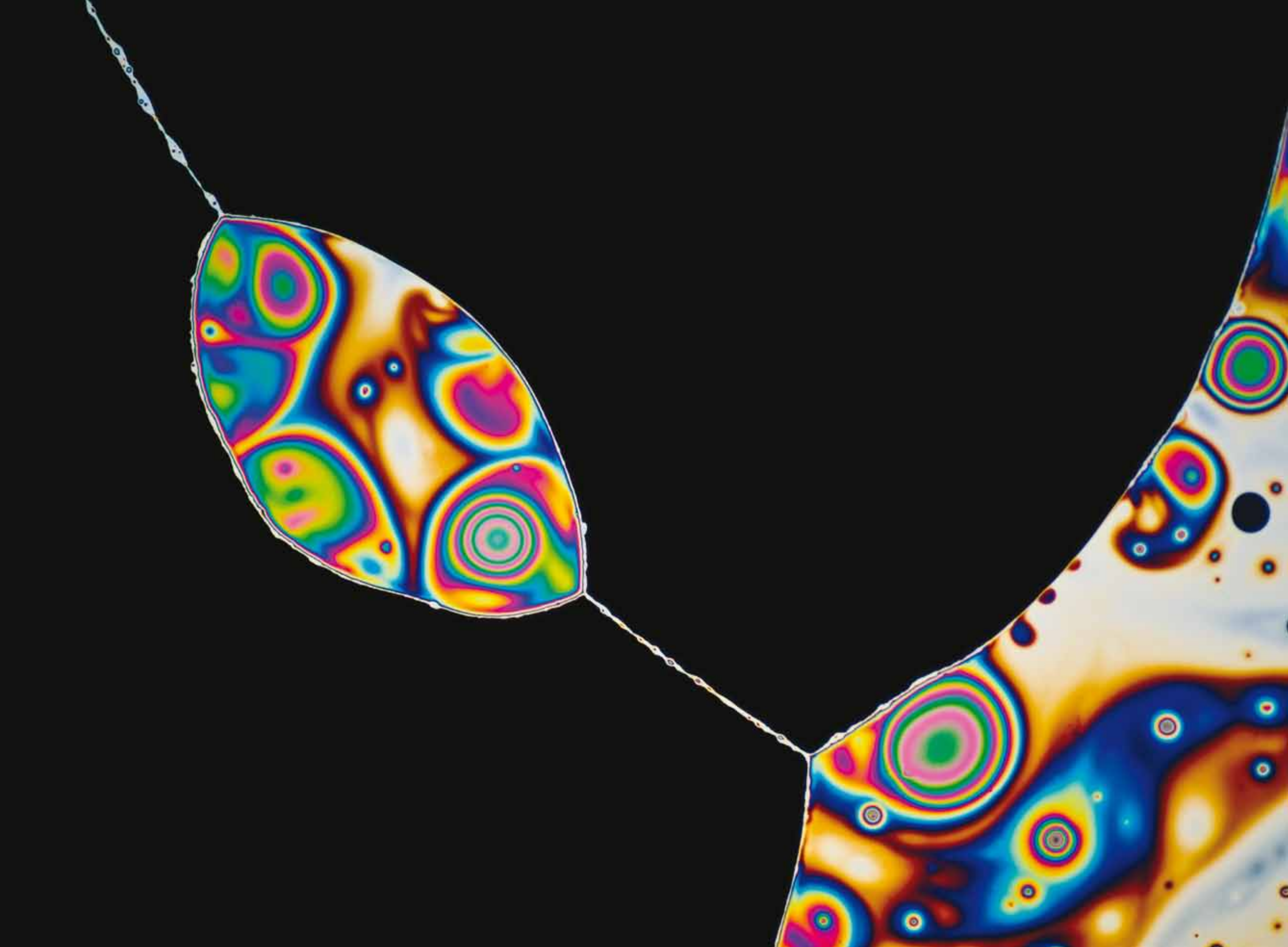
Focussing is done by the focussing magnifier. Unfortunately, one has to work with two shutters: the focal plane shutter of the SLR and the internal leaf shutter of the microscope. The latter is set by the automatic control unit. First, the SLR shutter has to be opened for a longer time while the microscope shutter exposes the image into the SLR.

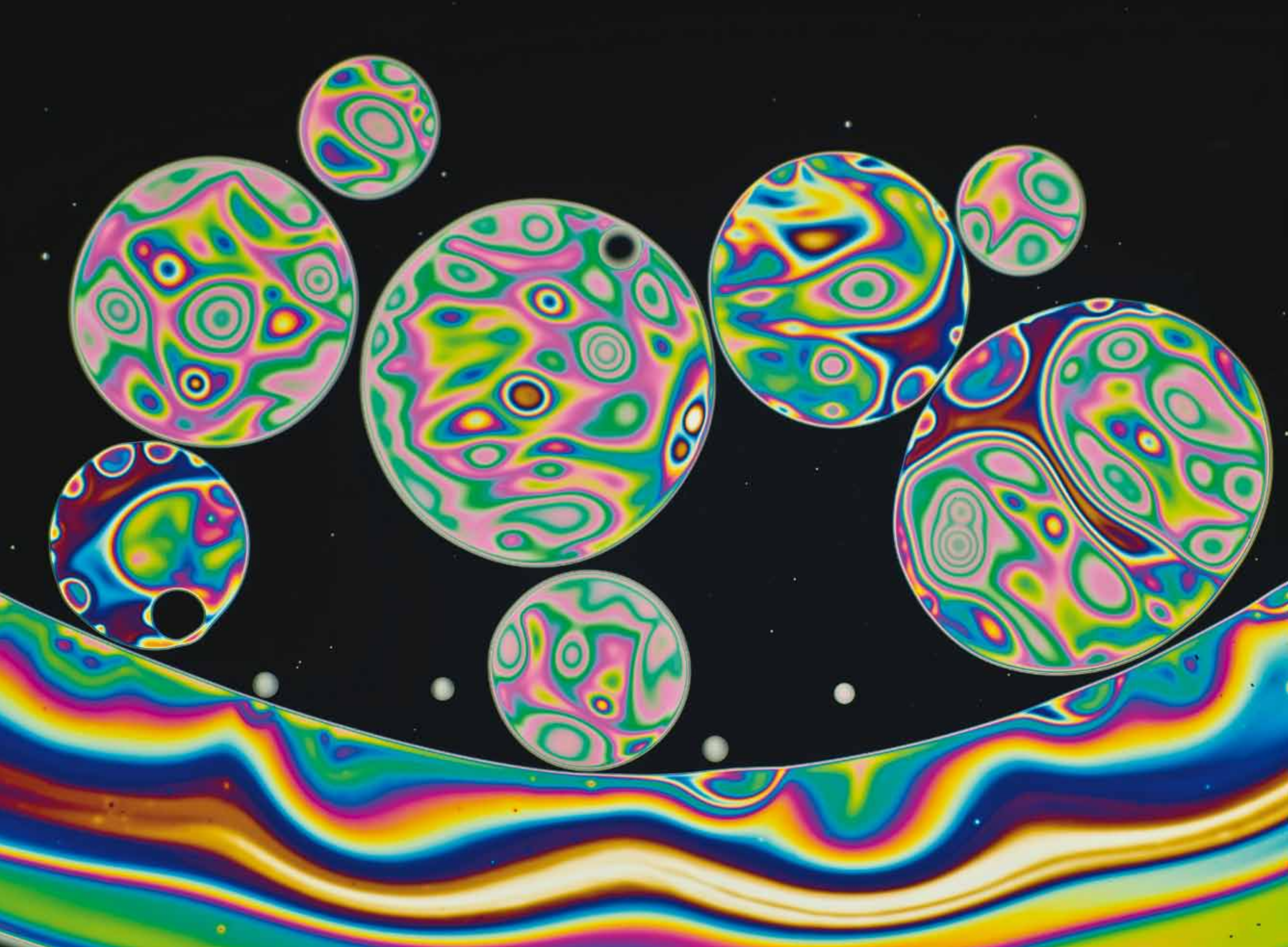
All images were photographed through a 10 x lens and a 2.5 x projection lens (total magnification: 12.5 x). Diagonal width of each image: 1.8 mm. The soap film is located within a circular opening in a regular 35 mm slide holder. The basic formula for the soap film is detergent, water and glycerine mixed as equal quantities.

The equipment used was as follows: microscope: Nikon OPTIPHOT, metallurgic, with internal leaf shutter, Nikon-Control unit with X-synchronisation, adjustable transformer, condenser for reflected light, with integrated strobe, grey filters with different density, focus magnifier. Camera: Nikon D3 with cable release.









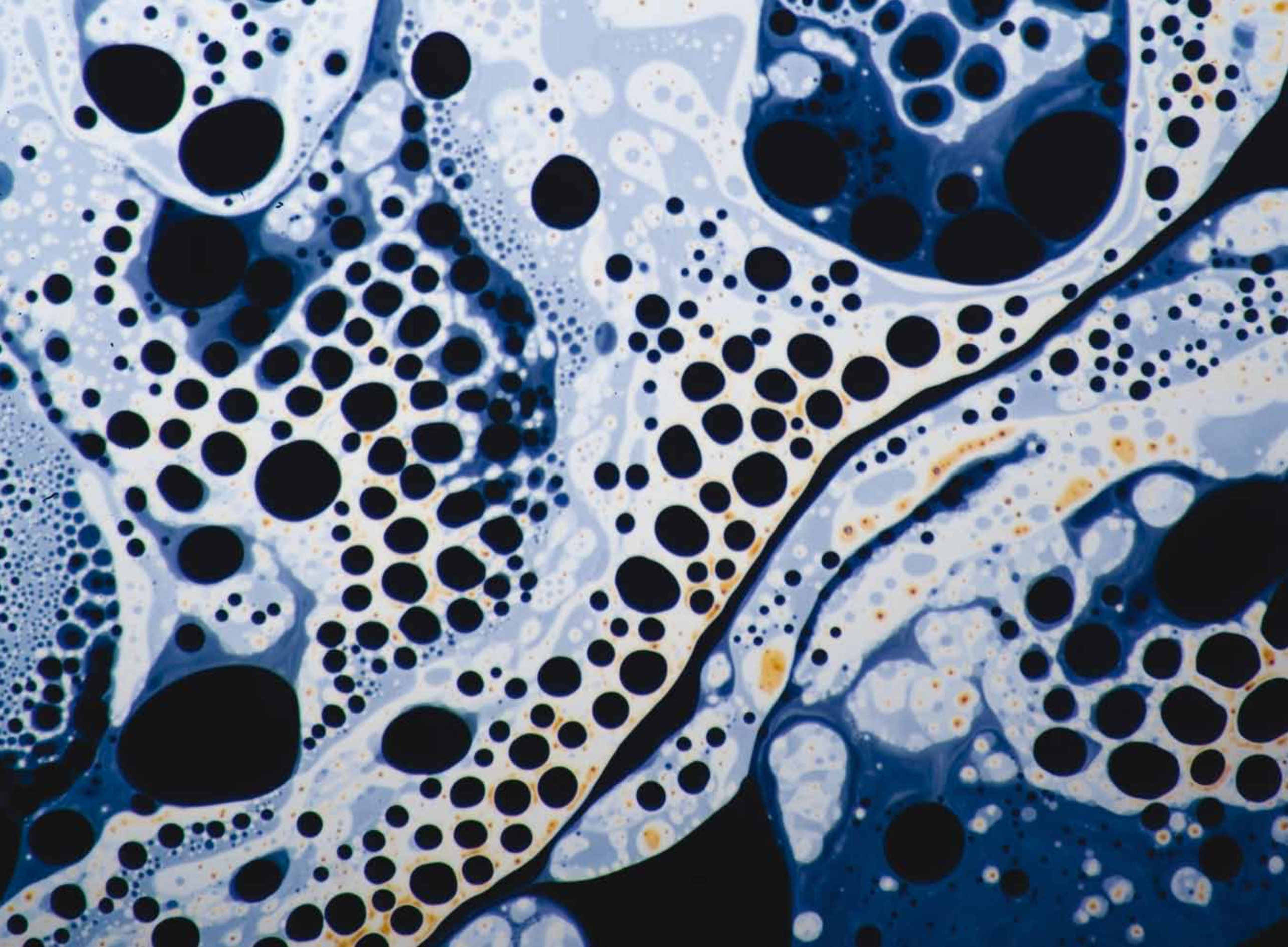




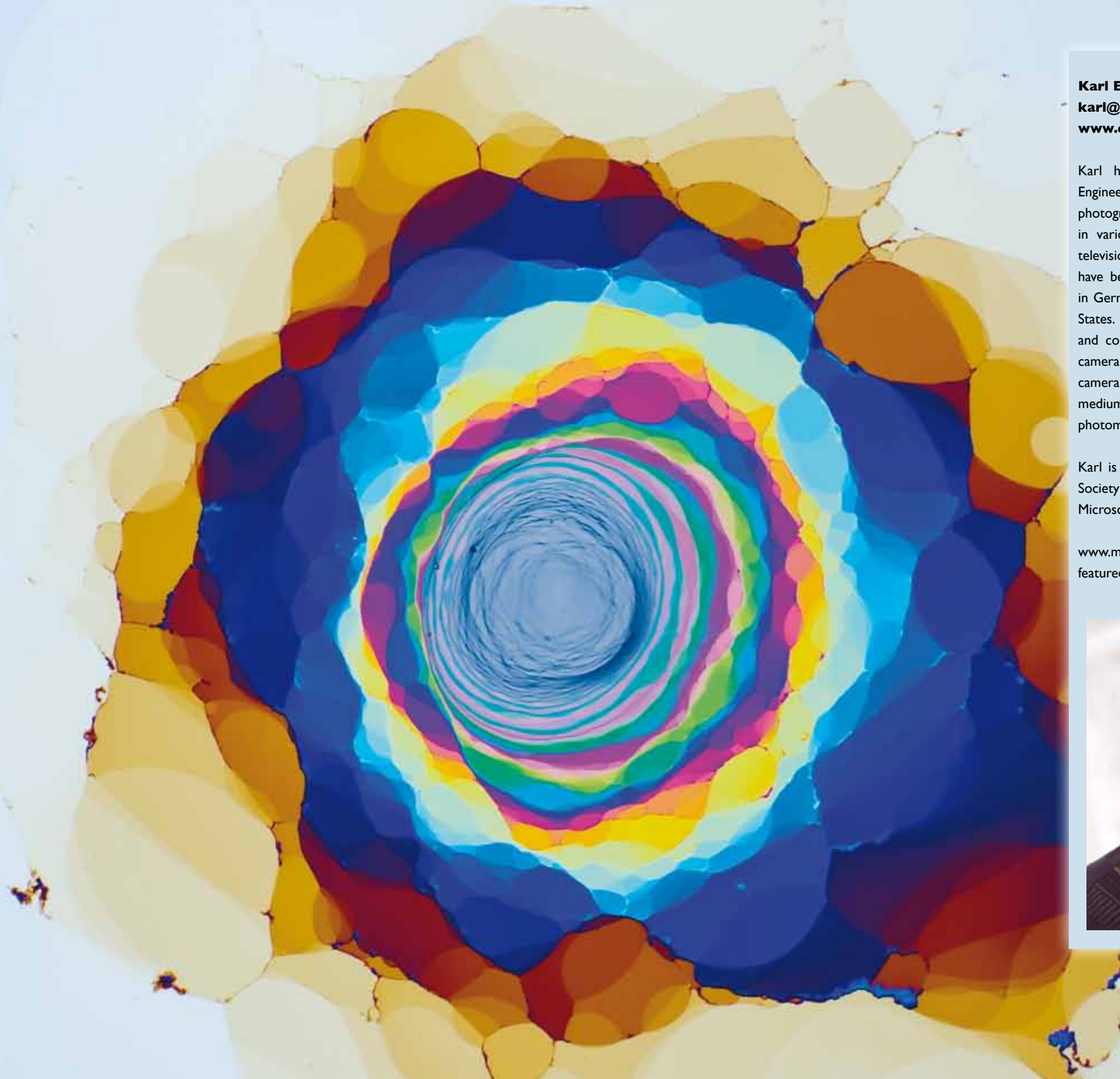












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Karl holds a master's degree in Electrical Engineering and has published over 50 articles in photography periodicals and over 2000 images in various media, including calendars, posters, television and commercial video. His images have been on display or used in printed form in Germany, Greece, India, Japan and the United States. During his career, Karl has designed and constructed a wide angle medium format camera as well as a hand-held 4 x 5-inch format camera. He has also developed and patented a medium format camera designed specifically for photomicrography.

Karl is a member of the German Photography Society (DGPh) and a Fellow of the Royal Microscopical Society.

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