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Understanding photography as applied chemistry: Using Talbot's calotype process to introduce chemistry to design students

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Generations of teachers and lecturers of chemistry have aimed at stimulating the curiosity of their students. Kindling an interest in chemistry for nonchemistry majors such as design students is even more of a challenge. Traditional photographic processes such as William Henry Fox Talbot's calotype process are a link between the artistic and scientific disciplines. In two–three day workshops, design students without a major background in chemistry were able to define a reproducible protocol for Talbot's gallic acid containing calotype process. The aim is to offer students the possibility to discover the chemical process on their own and to translate the procedure into creative artwork. With the experimental concept presented herein, students can be taught to approach an issue in a systematic way, to practice their problem solving skills, and to experience chemistry in a hands-on learning environment. Due to the workshop setup, students can be coached individually in accordance with their progress. They can understand the chemical process, manipulate it, and use it in an artistic fashion. However, the molecular interpretation of a photograph is the means to an end. Photography is a well-known, ubiquitous process, and even today, young students are fascinated by the moment when the picture becomes visible in the dark room. Labor intensive photographs are appreciated in a different way than images taken with digital cameras or smartphones. Students without a chemical background succeeded in formulating a reproducible protocol for the calotype process and were able to pass on their knowledge to fellow students.

Biography

Esther S Rösch has completed her PhD from Karlsruhe Institute of Technology (KIT) in 2009. After graduation, she worked as Group Leader and Manager in the Pharmaceutical Industry. In 2013, she was appointed as Professor of Bioanalytics in the Medical Engineering course of studies at Pforzheim University of Applied Sciences. Her educational goal is to inspire students with interdisciplinary projects in Chemistry.

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