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Green Shadows: Goethe, Ritter and Ørsted on the Polarity of Green and Purple

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December 10th, 1777. Goethe descends a snow-covered mountain in the purple light of the sunset. He can hardly believe his eyes. As in a psychedelic dream, all shadows shine in jade green although no such color is objectively present. This striking experience is the beginning of a lifelong obsession. Goethe set up systematic experiments to explore the phenomena of colored shadows and he pursued the complementary structures discovered there far into theoretical physics. As his experiments demonstrated, Newton's famous light spectrum with its green center has a complementary counterpart with a purple center. Moreover, for each optical experiment of Newton's there is a complementary inversion.

Goethe and his scientific partners were convinced that the polar interplay between green and purple, light and dark, warm and cold etc. organizes the entire nature, creating a deep connection of all phenomena. When Wilhelm Herschel discovered infrared light in 1800, for reasons of symmetry invisible radiation was to be expected at the opposite end of the spectrum. Thus in 1801 Johann Ritter discovered UV light with Goethe's method. Another 20 years later, and with the very same method of polarity, a student and friend of Ritter's made his greatest discovery: Ørsted's electromagnetism is the interaction between the polarities of electricity and magnetism; its discovery constitutes both the conclusion and climax of Goethean thought.

The keynote by Olaf Müller is accompanied by an art intervention by Hubert Schmidleitner.



Photo: Matthias Heyde

Olaf L. Müller studied philosophy, mathematics, computer science, and economics in Göttingen (Germany) and Los Angeles (UCLA). In 1996, he was a research fellow at Jagiellonian University (Kraków), in 1997 at Harvard University. Since 2003, he holds the chair for philosophy of science at Humboldt University (Berlin). On invitation of the Japanese Society for Goethean Natural Science, he worked as a guest professor at Keio University (Tokyo). In his books, he argues against skepticism à la Matrix (2003); in favour of good old metaphysics (2003); in favour of moral observation (2008); and in favour of Goethe's attack on Newton's optics (2015); at present he is writing a book about the role of beauty in physics (2019). In his papers, he defends freedom against the neurosciences, pacifism against adherents of just war, individual justice in climate ethics against Western egoism, and mind/body-dualism against materialism. His main concern is a humanistic interpretation of modern science and technology: Both ought to be achievements of humans for humans. farbenstreit.de