

# FORSCHUNGSKOLLOQUIUM ZUR WISSENSCHAFTSGESCHICHTE

Prof. Dr. Friedrich Steinle

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## **Die umgekehrte Welt. The Role of Optics in Descartes' Epistemology**

After having demonstrated the formation of an inverted picture on the rear of the eye, the founder of Early Modern optics confessed he had no clues as how this luminous image could be transmitted beyond the retina, through the optical nerves, to the brain. By Kepler's own admission, what was left to explain was of great significance, as the final and ultimate stage of the perceptual process. Early Modern anatomists had in fact discovered that the optical nerves were not hollow and, as a consequence, light could not creep through them as Medieval theorists were happy to assume. Early Modern thinkers were thus faced with the problem of accounting for color experience without counting on a continuous transmission of light and color to the seat of sensation in the brain. As Kepler regretfully admitted, "the arsenal of the optical writers does not extend beyond this opaque wall". Not that of the visual theorists up to Kepler, at least. Indeed, one of the key revolutions of Early Modern vision theory occurred precisely because natural philosophers were puzzling over the transmission of this light image *per opaca corporis ad Animæ penetralia* ("through the opacity of the body up to the inner cell of the soul"). Insoluble as it was with the old conceptual tools, this puzzle – together with Kepler's discovery about the inversion of the retinal image – called for a shift in paradigm. In my talk I will study Descartes' solution to these apparently quite minor problems, by arguing that it was precisely while musing on their solution that Descartes felt compelled to eventually abandon the received model of perception, based on the concept of similarity, to replace it with a new epistemology of representation.

**Mattia Mantovani** is about to complete a Ph.D. in Philosophy at the Humboldt University of Berlin, with a dissertation on Descartes' theory of vision. He studied at the Scuola Normale Superiore in Pisa, the St. John's College in Oxford, the University of Pennsylvania and the Descartes Centre in Utrecht (as well as in Berlin, of course). His main field of interest are the history of Early Modern philosophy and science, with a particular attention to optics, and aesthetics.

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16 Uhr  
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