

**Dr. Malte Schröder – Université de Genève**

## **Titel**

Optomechanical Clearing of Aerosols for Free-Space Optical Telecommunication

## **Abstract**

Aerosol clearing via optomechanical displacement through the use of ultrafast laser pulses has been shown as an effective method for the enhancement of free-space optical telecommunication through turbid media like fog and clouds. Our work represents a step towards a better understanding of the fundamental physical principles behind the clearing mechanism and improving the applicability of the technique. The goal is to bring advance from a laboratory setting closer to real-life application. To this end, we present results from several experiments, showing the effect of a laser-induced shockwave in the air on an ensemble of droplets and single microspheres. Additionally, we demonstrated an alternative way of laser-based shockwave generation in the air via the coherent rotational excitation of nitrogen molecules and the first attempt at clearing a channel through an artificial cloud at meter-scale.

## **CV**

[01.09.2011 – 31.03.2012 ] Bachelor of Science – Physics, Eidgenössische Technische Hochschule Zürich

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