

1145-83-1135 **Henri P Roesch*** (roesch@math.columbia.edu), 2990 Broadway, New York, NY 10027, and
Marcus C Werner. *Optical Geometry and the Isoperimetric Problem.* Preliminary report.

Einstein's theory of General Relativity predicts the bending of light trajectories between a distant source and an observer around a distribution of matter, or a gravitational lens, suspended in space-time. In static, spherically symmetric space-times, the geometry of these light trajectories can be described by a conformal rescaling of the space-time metric, called its Optical Geometry. In this talk, we discuss recent work on the Isoperimetric Problem in optical geometry and the implications for its gravitational lens. In particular, adapting a theorem of Hubert Bray, we give a proof of the Isoperimetric Problem for the Schwarzschild lens. (Received September 19, 2018)