

International Seminar on Applied Geometry in Andalusia

Granada (Spain) September 4-8, 2006

STEFAN HAESSEN, KATHOLIEKE UNIVERSITEIT LEUVEN (BELGIUM)

Understanding vision through geometry

1. **Visual illusions and perception:** An active field in human vision is to give an explanation for visual illusions like the Muller-Lyer illusion and the Bristol café wall illusion. A simple mathematical model is presented for these, and other, illusions based on the geometry of the observed surface of luminosity.
2. **Universal natural shapes:** In computer graphics, the speed and size with which objects can be constructed are of crucial importance. A geometrical formula is presented, which generalizes Lamé's formula for the superellipses and which has the ability to generate a large variety of natural shapes using a minimum amount of space.