

**SONDERSEMINAR**  
**MPQ/LMU**

**am:** Donnerstag, 21. Oktober 2010

**Uhrzeit:** 10:30 Uhr c.t.

**spricht:** Dr. Ieva Sliesoraityte  
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**Thema:** Subretinal Microelectrode Arrays  
for Restoring Visual Sensation

**Ort:** Max-Planck-Institut f. Quantenoptik, Hörsaal

**gez. Prof. T.W. Hänsch**

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**Abstract**

Visual Sensation is the perpetual experience of physiological sense of visible light reaching the human eye by which the form, color, size, movements, and distance of objects are perceived. In order to create a sharp image of the environment the wavelength within the visible spectrum should pass through the refractive media and focus on the retina. Light signals penetrating human retina should be detected by light sensing cells known as photoreceptors. There are two types of photoreceptors, i.e. rods which are sensitive to the intensity of light, while cones are the color-sensing cells. Sustainable photoreceptors activity is a matrix for chemical reactions that results an electrical impulse being transferred along nerves to the brain. Diseases leading to the premature degeneration and/or photoreceptors dysfunction are the course of irreversible blindness, while retinitis pigmentosa is the most common cause of inherited blindness worldwide. Numerous potential approaches, including gene and stem cells therapies, are currently being pursued in the hope of preventing blindness. Although, once vision is totally lost, the subretinal design concept (Zrenner 2000) the array is placed in the subretinal space and lost photoreceptors are artificially replaced. The restored visual sensation using subretinal microelectrode arrays depends on residual structural and functional capabilities of remaining retinal network in blind humans.