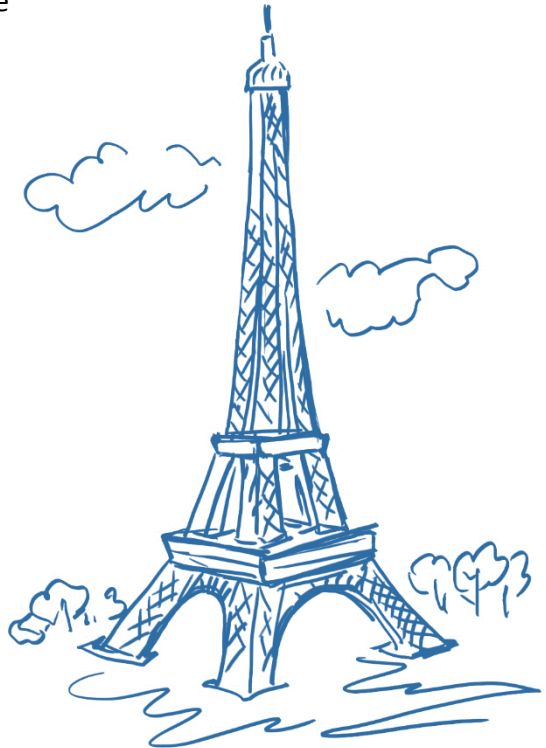




# EUROPEAN RETINA MEETING 2017

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**Organisers:**

Serge Picaud, Alvaro Rendon (Institut de la Vision, France)

Petri Ala-Laurila (University of Helsinki, Finland)

## 9) Receptive field structure of sustained ganglion cells in the fish retina

Alexey Aliper, Ilija Damjanovic, Pavel Maximov, Elena Maximova

Institute for Information Transmission Problems of the Russian Academy of Sciences  
(Kharkevich Institute)

In vertebrates primary processing of visual information is carried out on retinal level. In lower vertebrates the structure that receives the majority of the retinal inputs is *tectum opticum*. The retinal ganglion cells send their axons to its outer layer. The ganglion cells projecting to tectum opticum can be divided into several types basing on the preferred stimuli they respond to. The axon terminals of sustained ganglion cells can be found in the deepest sublamina of retino-receptient layer of the *tectum opticum*. Their preferred stimuli are brightness shifts in the receptive field. Depending on the sign of contrast preferred sustained ganglion cells can be divided into light sustained and dark sustained subtypes.

We recorded extracellular activity from the axon terminals of retinal GCs in the *tectum opticum* of *Carassius gibelio*, which is a close relative of goldfish and zebrafish. For the visual stimulation we used CRT monitor. The properties of stimuli and the experimental series were adjusted with unique software developed for our research.

Responsive or excitatory central part of the receptive field (ERF) of the sustained ganglion cells appear to be of the same size as the other retinal GCs projecting to *tectum opticum*. However when we gradually increase the size of presented stimulus the number of spikes in response keeps growing even when the size of stimulus significantly exceeds the ERF. On the other hand total darkening or lightening of the visual scene (depending on a cell subtype) drastically inhibits the response from the cell. This means that the receptive fields of sustained GCs have large and complicated peripheral area.

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