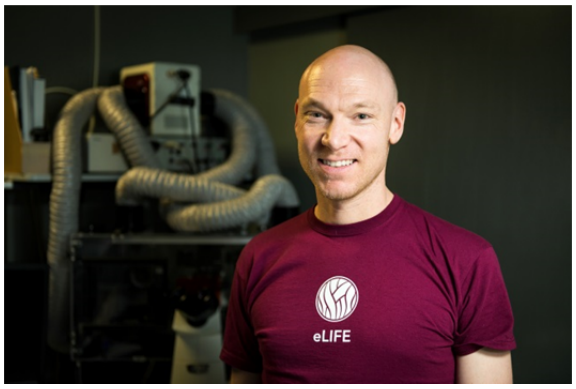
SFB 960-/BZR – Kolloquium

10. August 2017, 14.00 Uhr
H53



Dr. Ivo Telley
Instituto Gulbenkian de Ciência,
Oeiras, Portugal

Physical principles of nuclear division

In *Drosophila* embryos, zygotic nuclei initially undergo rapid successive divisions without cytokinesis and, therefore, a vast number of nuclei share the same intracellular space in a syncytium. They need to be evenly distributed throughout a large cytoplasmic volume and brought to the cell cortex to form even-sized cells. The regular arrangement of the nuclei is vital to later embryo development, and defects that perturb this distribution are lethal. How the regular nuclear distribution during early divisions is achieved and maintained is an interesting yet unresolved question.

One of Ivo's main research tracks is to understand the physical principles underlying the regular arrangement and precise positioning of nuclei, and the mechanism that maintain the regularity of the nuclear distribution during perturbations such as nuclear division. He will present new insight into the mechanics of nuclear distribution and point at microtubule-based molecular interactions that are involved in distance maintenance between nuclei. It is known that the microtubule cytoskeleton plays a key role in nuclear transport, and its dynamics is greatly determined by the microtubule-organizing center, the centrosome. Ivo has evidence from mitotic mutants which suggests that the centrosomes, and not the nuclei, are the spatial organizer in the early embryo.

Finally, he will present efforts in developing an extract approach to study young fertilized eggs and visualize pronuclei and sperm in time-lapse and high-resolution, something which has not been possible to date. With this approach, he aims to study how *Wolbachia* infection in *Drosophila* affects the last stages of fertilization and, in particular, what causes the first mitotic division to fail.

Host: Jan Medenbach
Biochemistry I
Jan.Medenbach@ur.de

Universität Regensburg
Biochemie-Zentrum Regensburg