

GSI – BIOPHYSICS SEMINAR

Dr. Bastian Roth

Cellular and Molecular Neurophysiology
TU Darmstadt

Tuesday, April 2nd, 2019 at 2 p.m.

Lecture hall, Theory SB3 3.170a
Planckstraße 1, 64291 Darmstadt

"Low-dose radiation manipulates neural stem cell-fate progression mediated by potassium-channel activation"

Changes in the activity of ion-channels in the cell-membrane are involved in the majority of physiological processes like proliferation, differentiation and migration, especially the process of neurogenesis is dependent of an orchestra of distinct ion-channels. Our studies have shown that ionizing irradiation can influence the activity and expression of ion-channels in the brain and might therefore have a direct impact on the cognitive function. From our electrophysiological data, it can be inferred that ion-channels are activated upon irradiation but only after some delay. Furthermore the simultaneous occurrence of early differentiation markers lead to the assumption that clinical-relevant radiation doses enhance the decision to differentiate via ion-channel activation. The underlying mechanism of ion-channel regulation by low-dose ionizing irradiation is not yet completely understood, but very probably plays a major role in planning future treatment strategies or risk assessment.

Hosted by Prof. Dr. Marco Durante
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