GSI – **BIOPHYSICS SEMINAR**

Prof. Dr. Matteo Cerri

University of Bologna, Italy

Thursday, October 18th, 2018 at 2 p.m.

Lecture hall, Theory SB3 3.170a

Planckstraße 1, 64291 Darmstadt

"A cool life: exploiting hibernation for space exploration and biomedical applications"

Radiation induces serious damage to biological tissues. Interplanetary human missions, for example, are made dangerous by the amount of radiation the astronauts can be exposed to. Similarly, in medical applications the amount of radiation that can be employed in the treatment of a tumor is limited by the damage that the surrounding healthy tissue will also receive.

A peculiar biological condition that was shown to enhance radioprotection is hibernation/torpor, a state that, in mammals, is characterized by an active reduction in metabolic rate with a progressive decrease in body temperature. During torpor, many organs and systems show specific changes in their physiology that can be exploited for new applications.

The recent development of an effective procedure to mimic torpor in animals that don't hibernate, a state called synthetic torpor, has in fact open new possibilities for research. In this talk, the most recent development in the understanding of the physiology of such state will be presented, with a particular focus to the brain, the immune system, and the protection from radiation damage, exploring the possibility to translate such state to humans.

Hosted by Prof. Dr. Marco Durante
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