

The Fourth Dimension: Integration of time to shape co-operativity and survival in the biosphere

Initiative: "Leben?" - Ein neuer Blick der Naturwissenschaften auf die grundlegenden Prinzipien des Lebens

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Biodiversity is a sign of ecological health. Models to explain this phenomenon have largely ignored temporal structures, such as the 24 h day. The researchers involved in this project have found that daily, cycling "Zeitgebers" of the circadian clock support microbial co-existence. They will explore this phenomenon through integration of minimalistic systems in vitro, in in vivo genetic models and by using mathematical models. Basic rules of temporal structuring that foster biodiversity, as well as the molecular pathways that are invoked in the process will be identified. This work explores integration of the physical environment into cell biology in a completely novel approach to understanding the foundations of population structure.

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