**Title: Entropic Principles in Metabolism**

Abstract: Oliver Ebenhoeh

Usually, we think of enzymes as catalysts which are highly specific to in the substrates they can accept.
However, many enzymes actually are not specific to a particular substrate molecule but just to a
submolecular pattern. This leads to the acceptance of a large number of substrates which share certain
properties but are otherwise different. A prominent example are carbohydrate polymers. Glucanotransferases,
for example, often recognise the non-reducing end of a glucan, regardless of the exact chain length.
This results in an infinite number of reactions that a single enzyme can catalyse.

In this talk, I show how the action of such enzymes, despite the complexity of the reaction patterns, can
be described with theoretical methods. I demonstrate how concepts of statistical thermodynamics can
be employed and lead to a generalised concept of the equilibrium constant. Moreover, with dynamic
simulations we are able to explore the role of such enzymes in energy metabolism.

References:
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