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Biomimetics in Energy Systems: Chances and Perspectives for an energetically sustainable Future

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One of the main global challenges of mankind in the coming century is the generation of sufficient amounts of sustainable energy to satisfy the rising hunger for energy in today's growing population and economy. With fossil fuels nearing depletion and high risks for the population and environment involved in the usage of nuclear power, new ideas and inspirations for energy generation are required for the transition into a brighter future.

One highly promising approach to solve this problem is the comparatively new science field of biomimetics, which is seeking inspiration from nature with the goal of transferring ideas and working principles to technological applications. During four billion years of evolution, only the most energy-efficient solutions prevailed and many of them may serve as role models for today's innovations. Apart from shaping organisms to ideally fit their surroundings, nature managed to develop a perfect sustainable cycle of energy transformation that relies on sunlight as the main power source. In this talk, some examples of biomimetic work will be shown and a possible transition path from the existing way we are using energy today to a sustainable, solar-power driven future will be drawn.