

**AKE 8: Renewable Energy - Unconventional Bio Energy**

Time: Tuesday 11:15–11:45

Location: DÜL

**Invited Talk**

AKE 8.1 Tue 11:15 DÜL

**Bioenergy: Chances and Pitfalls** — •KATJA BÜHLER —  
Helmholtz Center for Environmental Research, Leipzig, Germany

In times of climate change and severe pressure on the natural resources of our planet bioenergy is a very controversial discussed topic. Bioenergy covers a broad field, reaching from the production of biofuels like ethanol and diesel from crop-based sugars, to the conversion of lignocellulose and microalgae. All mentioned approaches rely on the exploitation of biomass for energy production. Although significant progress was achieved in those technologies in recent years, biofuels still have problems to become established in the market. One reason

certainly is the current low oil price which is a negative incentive for this technology. However, another major point in this discussion is the environmental footprint of bioenergy. Issues connected to land use, low efficiencies, tedious product isolation and the low energy return of invest make it questionable whether bioenergy in its current form is able to make a contribution to sustainable, CO<sub>2</sub>-neutral energy production. This presentation will lead through the different generations of bioenergy, discussing potentials and drawbacks. The focus will be on the so-called fourth-generation fuels, for which microorganisms are utilized as light-driven cell factories for fuel production directly from carbon dioxide, in my opinion the only concept with the chance to become a true bioenergy technology one day.