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Hilgendorf Lecture July 12, 2017. Universität Tübingen, Institut für Evolution und Ökologie.

Presenter: **Ille C. Gebeshuber**, Vienna University of Technology, Institute of Applied Physics

Title: **What is a physicist doing in the jungle? Biomimetics of the rainforest**

Abstract: The physicist Ille C. Gebeshuber from the Vienna University of Technology spent from 2009 until 2015 seven years in peninsular Malaysia and Borneo. During that time she lead various inter- and transdisciplinary rainforest expeditions, where the scientists and artists learnt from each other and from the inspiring surrounding animals, plants, microorganisms and ecosystems about new ways of dealing with resources, producing, using and disposing. The main goal of her work is to establish a disruptive way of technology development, resulting in products and devices that are neutral or positive for people and the whole biosphere. She will give various examples for inspiring materials, structures and processes from living nature. One intriguing example are structural colours. Such colours arise from minuscule structures rather than from pigments, and yield the brilliant coloration in the wings of certain tropical butterflies, in feathers of peacocks and even in some plants. The combination of such nanostructures with microstructures yields in certain butterflies further surface functionalities such as directed water run-off, temperature management and self-cleaning properties. These properties are based on structures, and to a large extent independent of the materials used. Gebeshuber's team succeeded in transferring the related structures from the fragile biotemplate to a master stamp with an area of various square centimetres. This stamp can be used to repetitively stamp colours and further functional aspects by just stamping structures into surfaces – without the use of any pigment or additional layer.

Buchtip: http://ecowin.at/buch/wo-die-maschinen-wachsen/

Ille C. Gebeshuber
Wo die Maschinen wachsen: Wie Lösungen aus dem Dschungel unser Leben verändern werden
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