

## SPEAKER



### NAME

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### BIOGRAPHY

#### Employment:

since 09/2017

Group leader, Macromolecular Chemistry and Paper Chemistry, TU-Darmstadt

since 07/2016

Project Manager, Papiertechnische Stiftung (Department of Functional Surfaces), Heidenau

08/2012 – 07/2016

PhD Researcher, Macromolecular Chemistry and Paper Chemistry, TU-Darmstadt

08/2011 – 01/2012

R&D-employee, Heppe Medical Chitosan GmbH, Halle (Saale)

#### Education:

2012 – 2016 Macromolecular Chemistry, Dr. rer. nat. (TU-Darmstadt)

2009 – 2011 Wood Science and Technology, M.Sc. (TU-Dresden)

2006 – 2009 Forest Science, B.Sc. (TU-Dresden)

2002 – 2005 Mechanical Engineering, Basic studies (TU-Dresden)

## LECTURE

Andreas Geißler and Oliver Elle

### Consideration regarding the interaction of environmental conditions and paper-based materials

Under appropriate conditions, paper is extremely durable and can last for centuries. However, this fact changes dramatically with the influence of environmental factors. During the use of paper-based construction and packaging materials, large fluctuations in temperature and humidity, the exposure to UV radiation, organic and inorganic contaminants and, last but not least, colonization by microorganisms have to be expected. These factors can very quickly lead to undesirable material changes and thus to a loss of usability. Only by means of supplementary protection and finishing strategies extended periods of use and demanding application scenarios can be realized under such conditions.

Especially the microbiological interaction with paper material raises a number of fundamental questions which have to be answered before appropriate solutions can be presented. In addition to the temporal and spatial colonization behavior by a complex microbiome perfectly adapted to cellulose, the tension between biological stability and biodegradability is in focus of the investigations.