



ZELLCHEMING-CONFERENCE

CELLULOSE-BASED MATERIALS –  
FROM SCIENCE TO TECHNOLOGY

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Alexander Ritter von Stockert<sup>1</sup>, Dr. Tobias Meckel<sup>2</sup> and Prof. Markus Biesalski<sup>3</sup>

### **Reducing sensitivity loss in microfluidic paper-based analytical devices (μPADs)**

1 M.Sc. Alexander von Stockert, Institute for macromolecular chemistry & paper chemistry, Technische Universität Darmstadt, Alarich-Weiss-Str. 8, 64287 Darmstadt, Germany, e-Mail vonstockert@cellulose.tu-darmstadt.de

2 Dr. Tobias Meckel, Institute for macromolecular chemistry and paper chemistry, Technische Universität Darmstadt, Alarich-Weiss-Str. 8, 64287 Darmstadt, Deutschland, e-Mail meckel@bio.tu-darmstadt.de

3 Prof. Markus Biesalski, Institute for macromolecular chemistry & paper chemistry, Technische Universität Darmstadt, Alarich-Weiss-Str. 8, 64287 Darmstadt, Deutschland, e-Mail biesalski@cellulose.tu-darmstadt.de

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#### **Abstract**

ASSURED (Affordable, Sensitive, Specific, User-friendly, Rapid and robust, Equipment-free and Deliverable to end-users) medical devices are a long desired goal across the planet, but especially in third world countries, where a trip to the doctor is not feasible for many people. Microfluidic paper-based analytical devices (μPADs) show a lot of the desired features of ASSURED biomedical devices, but lack the sensitivity of other microfluidic assays. This is mostly due to unspecific adsorption of proteins to the cellulose fibers. In this work, we aim to reduce the analyte loss on μPADs, by first determining the reasons for unspecific binding of proteins to cellulose and then reducing this adsorption via hydrogel attachment and tuning of fiber specific parameters.<sup>[1-5]</sup>

#### **References**

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**KEYWORDS:**

**[up to 10 keywords one below the other]**

ASSURED

μPAD

cellulose

microfluidic

protein repellency

entropic shielding

Chic-reaction

confocal microscopy

**Biography**

Alexander Ritter von Stockert was born on 01. September 1994 in Offenbach am Main and attended the Oswald-von-Nell-Breuning school until graduation. He then started to study chemistry at Technische Universität Darmstadt, where he completed his bachelor thesis, developing catalysts for ring-opening metathesis polymerizations in 2016. In 2018 he finished his Master studies in the work group of prof. Biesalski, identifying ways to reduce protein adsorption to paper fibers. Since fall 2018 he works as a PhD student in prof. Biesalski's working group.