

## Press release



### **The tradition goes on: Richard-Sebastian Moeller was awarded this year's LUM Young Scientist for the determination of particle adhesion of textile surfaces by using analytical centrifugation – Who will follow in 2021?**

Berlin, 25.09.2019:

LUM GmbH hosts since 2011 periodically the international scientific conference for researchers and users of particle and dispersion measuring technologies. Since 2013 areas of expertise in materials testing are also included. The 9th International Conference on Dispersion Analysis & Materials Testing took place in Berlin, Germany.

Since 2014 the LUM Young Scientist Award (YSA) recognizes outstanding scientific work by young researchers in the areas of particle and dispersion characterization and materials testing. Three candidates from Europe and North America were nominated this year. They presented their results during the session.

Dr.-Ing. Richard-Sebastian Moeller, Karlsruhe Institute of Technology (KIT), Germany, was awarded this year's LUM Young Scientist for his research work on the adhesion phenomena in the bakery trade, forming part of his dissertation.

Dough pieces are placed on proving cloths for rising. The challenge arises from the necessity of the sticky dough pieces to release quickly, fully and reliably from the cloths when tipped over. Dough or flour residues tend to spoil easily in the moist and warm atmosphere of the rising cabinet, and nourish mould and mildew. With his nominated research work "From the Life of Proving Cloths" [1] Moeller significantly contributes to a better understanding of particle adhesion on surfaces. He issues hands-on instructions for the hygienic design of woven cloths, and for cleanly maximizing their service life. The LUMiSizer is used here for the determination of mechanical particle properties using centrifugal technology and developed special measuring cells.

The functional principle is described by Moeller [2]: The centrifugation causes a force in the dough sample. This results in practically relevant shear rates on the dough and it can be seen how long the dough needs to peel off. The shadow of the dough sample is recorded. If the dough detaches, its shadow shifts. In the experimental setup used here, a LUMiSizer was used, which unites a temperature stabilized centrifuge and a space and time resolved optical transmission measurement. In combination with the cuvette inserts with transparent side walls constructed at the KIT chair, it is possible to observe a dough sample in the centrifugal field as it deforms and detaches from its subsurface. Further details are described by Moeller in his dissertation [2].

As laudator Prof. Dr. Dr. Lerche, Scientific Conference Chair, emphasized in his speech, Moeller's work duly joins the ranks of the five previous winners from Israel (2014), the Netherlands (2015), Germany (2016, 2018) and Australia (2016). His work impresses with a high professional level and a special originality. The experimental approach allows for new

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perspectives and potentials of analytical centrifugation to be discovered and successfully applied. Moeller has already published his results in the international Journal of Food Engineering [3].

The next LUM Young Scientist Award will be presented at the 10th International Conference on Dispersion Analysis and Materials Testing taking place in Berlin from January 25-26, 2021. Current information is available from [https://conference2021.lum-gmbh.com/conference\\_2021.html](https://conference2021.lum-gmbh.com/conference_2021.html).

### References:

[1] Abstracts of the 9th International Conference on Dispersion Analysis & Materials Testing in Berlin, Germany, 22-23 May, 2019, <https://www.dispersion-letters.com/> on 25/9/2019

[2] Haftkräfte, Alterung und Überwachung funktionaler Oberflächen – Gärtücher im Gebrauch, Dipl.-Ing. Richard-Sebastian Moeller, DISSERTATION 2018, Fakultät für Chemieingenieurwesen und Verfahrenstechnik des Karlsruher Instituts für Technologie (KIT), <https://publikationen.bibliothek.kit.edu/1000084747/15701917> on 25/9/2019

[3] Adhesion and cleanability of surfaces in the baker's trade, Richard-Sebastian Moeller, Hermann Nirschl, Journal of Food Engineering, 194, 2017, 99-108

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On the enclosed picture from left to right:

Prof. Dr. Dr. Lerche, Scientific Conference Chair, Dr.-Ing. Richard-Sebastian Moeller, Young Scientist 2019, Susanne Lerche-Merchant, COO LUM GmbH