

# Stanford

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## Claudia Zielke

Postdoctoral Scholar, Bioengineering

### Bio

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#### BIO

After a BS and MS in Chemistry from the Freie Universität Berlin, Germany, I used my expertise in physical and analytical Chemistry to received a PhD from the Department of Food Technology, Engineering and Nutrition at Lund's University in Sweden. I specialized within the Field-Flow Fractionation family, a very versatile and gentle separation technique able to separate large size ranges, from nanometer up to several micrometer. My thesis was titled "On the Aggregation of Cereal #-Glucan and its Association with other Biomolecules: A Study using Asymmetric Flow Field-Flow Fractionation (AF4)". After a postdoctoral position at Santa Clara University, CA, USA, I am now setting up an Asymmetric Flow Field-Flow Fractionation system with several detectors in the Barron Lab, BioE, here at Stanford.

#### PROFESSIONAL EDUCATION

- Master of Science, Freie Universität Berlin (2012)
- Bachelor of Science, Freie Universität Berlin (2009)
- Doctor of Philosophy, Lunds Universitet (2018)
- Postdoctoral Scholar, Santa Clara University, Santa Clara, CA, USA , Chemistry & Biochemistry (Physical and Analytical Chemistry, Microfluidics) (2021)
- Doctor of Philosophy, Lund's University, Lund, Sweden , Food Technology, Engineering & Nutrition (Analytical Chemistry) (2018)
- Master of Science, Freie Universität Berlin, Berlin, Germany , Chemistry (Physical and Analytical Chemistry) (2012)
- Bachelor of Science, Freie Universität Berlin, Berlin, Germany , Chemistry (2009)

#### STANFORD ADVISORS

- Annelise Barron, Postdoctoral Faculty Sponsor

### Publications

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#### PUBLICATIONS

- **Between Good and Evil: Complexation of the Human Cathelicidin LL-37 and Nucleic Acids.** *Biophysical journal*  
Zielke, C., Nielsen, J. E., Lin, J. S., Barron, A. E.  
2023
- **Tutorials in Analytical Chemistry (Book Review)** *CHROMATOGRAPHIA*  
Book Review Authored by: Zielke, C.  
2023; 86 (7): 573-574
- **Method for Passive Droplet Sorting after Photo-Tagging** *MICROMACHINES*  
Dobson, C., Zielke, C., Pan, C. W., Feit, C., Abbyad, P.  
2020; 11 (11)

- **Microfluidic Platform for the Isolation of Cancer-Cell Subpopulations Based on Single-Cell Glycolysis** *ANALYTICAL CHEMISTRY*  
Zielke, C., Pan, C. W., Ramirez, A., Feit, C., Dobson, C., Davidson, C., Sandel, B., Abbyad, P.  
2020; 92 (10): 6949-6957
- **Comparison between conventional and frit-inlet channels in separation of biopolymers by asymmetric flow field-flow fractionation** *ANALYST*  
Fuentes, C., Choi, J., Zielke, C., Penarrieta, J., Lee, S., Nilsson, L.  
2019; 144 (15): 4559-4568
- **Aggregation and microstructure of cereal beta-glucan and its association with other biomolecules** *COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS*  
Zielke, C., Lu, Y., Nilsson, L.  
2019; 560: 402-409
- **Characterization of cereal beta-glucan extracts: Conformation and structural aspects** *FOOD HYDROCOLLOIDS*  
Zielke, C., Stradner, A., Nilsson, L.  
2018; 79: 218-227
- **The effect of in vitro gastrointestinal conditions on the structure and conformation of oat beta-glucan** *FOOD HYDROCOLLOIDS*  
Korompokis, K., Nilsson, L., Zielke, C.  
2018; 77: 659-668
- **Interaction between cereal beta-glucan and proteins in solution and at interfaces** *COLLOIDS AND SURFACES B-BIOINTERFACES*  
Zielke, C., Lu, Y., Poinsot, R., Nilsson, L.  
2018; 162: 256-264
- **Co-elution phenomena in polymer mixtures studied by asymmetric flow field-flow fractionation** *JOURNAL OF CHROMATOGRAPHY A*  
Zielke, C., Fuentes, C., Piculell, L., Nilsson, L.  
2018; 1532: 251-256
- **Co-elution effects can influence molar mass determination of large macromolecules with asymmetric flow field-flow fractionation coupled to multiangle light scattering** *JOURNAL OF CHROMATOGRAPHY A*  
Perez-Rea, D., Zielke, C., Nilsson, L.  
2017; 1506: 138-141
- **Characterization of the molar mass distribution of macromolecules in beer for different mashing processes using asymmetric flow field-flow fractionation (AF4) coupled with multiple detectors** *ANALYTICAL AND BIOANALYTICAL CHEMISTRY*  
Choi, J., Zielke, C., Nilsson, L., Lee, S.  
2017; 409 (19): 4551-4558
- **Characterization of cereal beta-glucan extracts from oat and barley and quantification of proteinaceous matter** *PLOS ONE*  
Zielke, C., Kosik, O., Ainalem, M., Lovegrove, A., Stradner, A., Nilsson, L.  
2017; 12 (2): e0172034
- **Analysis of beta-glucan molar mass from barley malt and brewer's spent grain with asymmetric flow field-flow fractionation (AF4) and their association to proteins** *CARBOHYDRATE POLYMERS*  
Zielke, C., Teixeira, C., Ding, H., Cui, S., Nyman, M., Nilsson, L.  
2017; 157: 541-549
- **Role of polysaccharides in food, digestion, and health** *CRITICAL REVIEWS IN FOOD SCIENCE AND NUTRITION*  
Lovegrove, A., Edwards, C. H., De Noni, I., Patel, H., El, S. N., Grassby, T., Zielke, C., Ulmius, M., Nilsson, L., Butterworth, P. J., Ellis, P. R., Shewry, P. R.  
2017; 57 (2): 237-253
- **The effect of baking and enzymatic treatment on the structural properties of wheat starch** *FOOD CHEMISTRY*  
Fuentes, C., Zielke, C., Prakash, M., Kumar, P., Penarrieta, J., Eliasson, A., Nilsson, L.  
2016; 213: 768-774
- **Supported Mesoporous and Hierarchical Porous Pd/TiO<sub>2</sub> Catalytic Coatings with Controlled Particle Size and Pore Structure** *CHEMISTRY OF MATERIALS*  
Ortel, E., Sokolov, S., Zielke, C., Lauermann, I., Selve, S., Weh, K., Paul, B., Polte, J., Krahnert, R.  
2012; 24 (20): 3828-3838

• **Infrared spectroscopic ellipsometry (IRSE) and X-ray photoelectron spectroscopy (XPS) monitoring the preparation of maleimide-functionalized surfaces: from Au towards Si (111) SURFACE AND INTERFACE ANALYSIS**

Sun, G., Hovestaedt, M., Zhang, X., Hinrichs, K., Rosu, D., Lauermann, I., Zielke, C., Vollmer, A., Loechel, H., Ay, B., Holzhuetter, H., Schade, U., Esser, et al 2011; 43 (9): 1203-1210