Curriculum Vitae

Prof. Dr.-Ing. Stefan Töpfl
Food Process Engineering

Work addresses:

Date and place of birth:

Professional Experience

01/2017 to present	ELEA GmbH, Quakenbrück Managing Director Spin-off for marketing and distribution of processing equipment.
04/2015 to 05/2015	Visiting Professor at University of California, Davis Department of Food Science and Technology
01/2014 to 12/2016	ELEA GmbH Technical director and shareholder
05/2009 to present	University of Applied Sciences, Osnabrück Professor Food Process Engineering Teaching in lessons and seminars, coordination of practical courses, excursions to industry as well as partner universities in US, South Africa and China
10/2006 to 12/2016	German Institute of Food Technologies (DIL) e.V., Quakenbrück Advanced Research Manager Team leader on process and equipment design. Head of innovation board and technology mapping. Acquisition, coordination and management of industrial and public funded projects on national and international level.
07/2002 – 09/2006	Berlin University of Technology Scientific co-worker and project leader Project applications for third party funds (national and international)

Fields of interest

- Novel, emerging techniques in food and bio-engineering
- Sustainable processing, energy efficiency and recovery
- Equipment design and optimization, efficiency analysis
- Modelling of inactivation and reaction kinetics, distribution of processing intensity
- Analytical tools, flow cytometry, sensors, temperature-time integrators
- Technology labelling, communication and legislative framework

Education

09/2006	Ph.D. (Dr.-Ing.), Berlin University of Technology Pulsed Electric Fields for Permeabilization of Cell Membranes in Food- and Bioprocessing – Applications, Process and Equipment Design and Cost Analysis. Summa cum laude.
1996-2002	Studies, Dipl.-Ing. Food Technology, Berlin University of Technology. Summa cum laudae.

Awards

Georg-Carl-Hahn Research Prize 2009, recognizing high level scientific work in fields of chemistry, biochemistry and technology of foodstuffs and additives.

Teaching activities

Lessons and Seminars: Food and Bio-Process Engineering, Food Technology, Plant and Process Design, Special Food Technologies, Process Intensification and Simulation, IP Management.

Supervision of more than 80 bachelor and master and 5 PhD projects, most of them in cooperation with national and international food industry.

Other Activities

Advisory board member of German Research Association of Food Industry

Non-thermal processing division of Institute of Food Technologists

Reviewer for the EU Research Agency, German Ministry of Research as well as numerous scientific journals

Publications

25 Book chapters
1 Book
100 Journal articles

Book chapters

Siemer, C., Gratzek, J., Heinz, V., Toepfl, S. (2022). Process Validation and Hygienic Design for Pulsed Electric Field Processing. In: Raso, J., Heinz, V., Alvarez, I., Toepfl, S. (eds) Pulsed Electric Fields Technology for the Food Industry. Food Engineering Series. Springer, Cham. https://doi.org/10.1007/978-3-030-70586-2_18

Heinz, V., Toepfl, S. (2022). Pulsed Electric Fields Industrial Equipment Design. In: Raso, J., Heinz, V., Alvarez, I., Toepfl, S. (eds) Pulsed Electric Fields Technology for the Food Industry. Food Engineering Series. Springer, Cham. https://doi.org/10.1007/978-3-030-70586-2_17

Hill, K., Ostermeier, R., Töpfl, S., Heinz, V. (2022). Pulsed Electric Fields in the Potato Industry. In: Raso, J., Heinz, V., Alvarez, I., Toepfl, S. (eds) Pulsed Electric Fields Technology for the Food Industry. Food Engineering Series. Springer, Cham. https://doi.org/10.1007/978-3-030-70586-2_9

Dadan, M., Matys, A., Kaminska-Dworznicka, A., Lammerskitten, A., Toepfl, S., Parniakov, O. (2021) Improvement of freezing processes assisted by ultrasound. In Design and Optimization of Innovative Food Processing Techniques Assisted by Ultrasound, Editors Barba, F.J., Cravotto, G., Chemat, F., Lorenzo Rodriguez, J.M., Sichetti Munekata, P.E. Academic Press, 2021, 217-273, ISBN 9780128182758, https://doi.org/10.1016/B978-0-12-818275-8.00001-5.

Witt, J., Siemer, C., Bostelmann, A., Toepfl, S. (2021) Juice Preservation by Pulsed Electric Fields. In: Innovative Food Processing Technologies. Editors: Knoerzer, K., Muthukumarappan, K. Elsevier, 305-317, ISBN 9780128157824, https://doi.org/10.1016/B978-0-12-815781-7.00026-3.

Aganovic, K., Bolumar, T., Toepfl, S., Heinz, V., 2021. Fundamentals of Shockwave Processing for Food. In: Knoerzer, K., Muthukumarappan, K. (Eds.), Innovative Food Processing Technologies: A Comprehensive Review, vol. 3. Elsevier, pp. 95–411. https://doi.org/B978-0-12-815781-7.00023-8. ISN: 9780128157817

Parniakov, O., Wiktor, A., Toepfl, S. (2020) Application Concepts for PEF in Food and Biotechnology,. In: Reference Module in Food Science, Elsevier, ISBN 9780081005965, https://doi.org/10.1016/B978-0-12-815781-7.00012-3.

Wiktor, A., Lammerskitten, A., Barba, F., Michalski, M., Toepfl, S., Parniakov, O. (2020) Drying Processes Assisted by PEF for Plant-Based Materials. In: Reference Module in Food Science, Elsevier, ISBN 9780081005965, https://doi.org/10.1016/B978-0-12-815781-7.00001-9.

Toepfl, S., Kinsella, J., Parniakov, O., (2020) 12 - Industrial scale equipment, patents, and commercial applications. In: Pulsed Electric Fields to Obtain Healthier and Sustainable Food for Tomorrow, Academic Press, ISBN 9780128164020, https://doi.org/10.1016/B978-0-12-816402-0.00012-4.

Parniakov, O., Mikhrovska, M., Toepfl, S., Roselló-Soto, E., Pinto, C.A., Saraiva, J.A., Barba, F.J. (2020) 6 - Current and future strategies to reduce salt consumption. In: Agri-Food Industry Strategies for Healthy Diets and Sustainability, Academic Press, ISBN 9780128172261, https://doi.org/10.1016/B978-0-12-817226-1.00006-0.

Ostermeier, R., Hill, K., Toepfl, S., Jaeger, J. (2020) Pulsed electric field as a sustainable tool for the production of healthy snacks. In: Pulsed Electric Fields to Obtain Healthier and Sustainable Food for Tomorrow, Academic Press, ISBN 9780128164020,

Leonhardt, L., Witt, J., Toepfl, S., Rohm, H., Parniakov, O. (2019) Valuable Compounds in Algae , in: Green Extraction and Valorization of By-Products from Food Processing by Barba, F.J., Rosello Soto, E., Brncic, M., Lorenzo Rodriquez J.M., CRC Press, Boca Raton https://doi.org/10.1201/9780429325007

Ucak, I., Toepfl, S. (2019) High-Pressure Processing of Seafood in: Innovative Technologies in Seafood Processing by Ozogul, Y., CRC Press, Boca Raton, ISBN 9780815366447Bolumar, T., Middendorf, D., Toepfl, S. and Heinz, V. (2016) Structural Changes in Foods Caused by High-Pressure Processing. High Pressure Processing of Food – Principles, Technology and Applications. Springer. 509-537.

Bolumar, T. and Toepfl, S. (2016) Application of Shockwaves for Meat Tenderization, In Woodhead Publishing Series in Food Science, Technology and Nutrition, Woodhead Publishing, 2016, Pages 231-258, Innovative Food Processing Technologies, ISBN 9780081002940, http://dx.doi.org/10.1016/B978-0-08-100294-0.00009-2.

Toepfl, S., Siemer, C. and Heinz, V. (2014) Effect of High-Intensity Electric Field Pulses on Solid Foods Emerging Technologies for Food Processing (Second Edition), 2014, Pages 147-154 ISBN -9780124114791

Chauhan, O.P., Unni, L. and Toepfl, S. (2014) Quality of High-Pressure Processed Pastes and Purees. In Improving Food Quality with Novel Food Processing Technologies, CRC Press, pp. 111-132 DOI: 10.1201/b17780-9

Siemer, C., Aganovic, K., Toepfl, S. and Heinz, V. (2013): Application of Pulsed electric fields (PEF) in Food. 01/2013; , ISBN: 978-1-118-40632-8

Siemer, C., Toepfl, S., Heinz, V. (2012) Mass Transport Improvement by PEF - Applications in the Area of Extraction and Distillation. 03/2012; , ISBN: 978-953-51-0428-5

Toepfl, S., Heinz, V. (2011) Pulsed Electric Field Assisted Extraction - A Case Study. 01/2011: pages 190-200

Toepfl, S., Heinz, V. und Knorr, D. (2007) History of pulsed electric field application. In: Preservation of food by Pulsed Electric Fields – Ed.: Lelieveld, H., Notermans, S., De Haan, S.W., p. 9-39, Woodhead, Cambridge, UK.

Toepfl, S., Heinz, V. und Knorr, D. (2006) Applications of pulsed electric field technology for the food industry: In: Pulsed Electric Field Treatment of Foods, Ed: Raso, J. und Heinz, V., p. 197-221, Elsevier, Oxford, UK.

Toepfl, S., Heinz, V. und Knorr, D. (2005) Overview of Pulsed Electric Field Processing of Foods. In: Emerging Technologies for Food Processing, Ed: Sun, D-W., p. 67-97, Elsevier, Oxford, UK.

Journal articles

Woldemariam, H. W., Harmeling, H., Emire, S. A., Teshome, P. G., Toepfl, S., & Aganovic, K. (2022). Pulsed light treatment reduces microorganisms and mycotoxins naturally present in red pepper (Capsicum annuum L.) powder. Journal of Food Process Engineering, 45(2), e13948. https://doi.org/10.1111/jfpe.13948.

Khudyakov, D.A., Sosnin, M.D., Munassar, E.M.A., Techakanon, C., Siemer, C., Toepfl, Si. Shortskii, I. (2022) Pulsed Electric Field Processing as an Effective Tomato Peeling Method. Food Processing: Techniques and Technology, vol. 52, no. 1, pp. 189-198.

Joeres, E., Schölzel, H., Drusch, S., Töpfl, S., Heinz, V., and Terjung, N. (2022) Ohmic vs. conventional heating: Influence of moderate electric fields on properties of egg white protein gels, Food Hydrocolloids, Volume 127, https://doi.org/10.1016/j.foodhyd.2022.107519.

Koch, Y., Witt, J., Lammerskitten, A., Siemer, C., Toepfl, S. (2022) The influence of Pulsed Electric Fields (PEF) on the peeling ability of different fruits and vegetables, Journal of Food Engineering, Volume 322, https://doi.org/10.1016/j.jfoodeng.2021.110938.

Woldemariam, H.W., Emire, S.A., Teshome, P.G., Töpfl, S.and Aganovic, K. (2022) Microbial Inactivation and Quality Impact Assessment of Red Pepper (Capsicum Annuum L.) Paste Treated by High Pressure Processing. http://dx.doi.org/10.2139/ssrn.4062973

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Shorstkii, I., Sosnin, M., Smetana, S., Toepfl, S., Parniakov, O., Wiktor, A. (2022) Correlation of the cell disintegration index with Luikov's heat and mass transfer parameters for drying of pulsed electric field (PEF) pretreated plant materials, Journal of Food Engineering, Volume 316, ISSN 0260-8774, https://doi.org/10.1016/j.jfoodeng.2021.110822.

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Wiktor, A., Parniakov, O., Toepfl, S., Witrowa-Rajchert, D., Heinz, V., Smetana, S. (2021) Sustainability and bioactive compound preservation in microwave and pulsed electric fields technology assisted drying, Innovative Food Science & Emerging Technologies, Volume 67, ISSN 1466-8564, https://doi.org/10.1016/j.ifset.2020.102597.

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Ostermeier, R.; Parniakov, O.; Toepfl, S.; Jaeger, H. Applicability of Pulsed Electric Field (PEF) Pre-Treatment for a Convective Two-Step Drying Process. Foods 2020, 9, 512. https://doi.org/10.3390/foods9040512.

Käferböck, A., Smetana, S., De Vos, R., Schwarz, C., Toepfl, S., Parniakov, O. (2020) Sustainable extraction of valuable components from Spirulina assisted by pulsed electric fields technology, Algal Research, 48, ISSN 2211-9264, https://doi.org/10.1016/j.algal.2020.101914.

Leonhardt, L., Käferböck, A., Smetana, S., De Vos,R., Toepfl, S. and Parniakov O. (2020) Bio-refinery of Chlorella sorokiniana with pulsed electric field pre-treatment. Bioresource Technology, Volume 301, 122743, ISSN 0960-8524.

Ites, S., Smetana, S., Toepfl, S., Heinz V., (2020) Modularity of insect production and processing as a path to efficient and sustainable food waste treatment, Journal of Cleaner Production, Volume 248, 119248, ISSN 0959-6526,

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Lammerskitten, A., Mykhailyk, V., Wiktor, A., Toepfl, S. Nowacka, M., Bialik, M., Czyżewski, J., Witrowa-Rajchert, D., Parniakov O., (2019) Impact of pulsed electric fields on physical properties of freeze-dried apple tissue. Innovative Food Science & Emerging Technologies, Volume 57, 102211, ISSN 1466-8564,

Schroeder, S., Savage, A, Grigor, J., Keith, S., Cassidy, P., Toepfl, S. and Wilkin, D.J. (2019) Evaluation of Salmon (Salmo salar) and Rainbow Trout (Oncorhynchus mykiss) pin bones using textural analysis and micro X-ray computational tomography. J Food Sci Technol 56, 3313–3319, doi:10.1007/s13197-019-03803-9

Palanisamy, M., Toepfl, S., Berger, R.G., Hertel, C. (2019) Physico-chemical and nutritional properties of meat analogues based on Spirulina/lupin protein mixtures. Eur Food Res Technol 245: 1889. https://doi.org/10.1007/s00217-019-03298-w

Lammerskitten, A. Wiktor, A. Siemer,C., Toepfl, S., Mykhailyk, M., Gondek, E., Rybak,K., Witrowa-Rajchert, D., Parniakov, O. (2019) The effects of pulsed electric fields on the quality parameters of freeze-dried apples, Journal of Food Engineering, 252, 36-43, https://doi.org/10.1016/j.jfoodeng.2019.02.006.

Boulaaba, A. Kiessling, M., Egen, N., Klein, G. Toepfl, S. (2018). Effect of pulsed electric fields on the -endogenous microflora and physico-chemical properties of porcine blood plasma. Archiv für lebensmittelhygiene 69(6):164-170.

Schroeder, S., Grigor, J. M., Stathopoulos, C. E., Savage, A., Cassidy, P., Toepfl, S., & Wilkin, J. D. (2018). The effect of collagenase, water and calcium chloride on the removal of Salmo salar (salmon) and Oncorhynchus mykiss (trout) pin bones. Aquaculture International, 26(6), 1353-1363. https://doi.org/10.1007/s10499-018-0288-5

Ucak, I., Gokoglu, N., Kiessling, M., Toepfl, S., Galanakis, C.M. (2019) Inhibitory effects of high pressure treatment on microbial growth and biogenic amine formation in marinated herring (Clupea harengus) inoculated with Morganella psychrotolerans, LWT, 99:50-56, https://doi.org/10.1016/j.lwt.2018.09.058.

Grahl, S., Palanisamy, M., Strack, M., Meier-Dinkel L., Toepfl, S., Mörlein, D. (2018) Towards More Sustainable Meat Alternatives: How Technical Parameters Affect the Sensory Properties of Extrusion Products Derived from Soy and Algae, Journal of Cleaner Production (2018), doi: 10.1016/j.jclepro.2018.07.041

Palanisamy, M. , Franke, K. , Berger, R. G., Heinz, V. and Toepfl, S. (2019), High moisture extrusion of lupin protein: influence of extrusion parameters on extruder responses and product properties. J. Sci. Food Agric.. doi:10.1002/jsfa.9410

Smetana, S., Ashtari Larki, N., Pernutz, C., Franke, K., Bindrich, U., Toepfl, S., Heinz, V. (2018) Structure design of insect-based meat analogs with high-moisture extrusion. Journal of Food Engineering 229:83-85. DOI: 10.1016/j.jfoodeng.2017.06.035

Steiner, J., Franke, K., Kießling, M., Fischer, S., Toepfl, S., Heinz, V., Becker, T. (2018) Influence of hydrothermal treatment on the structural modification of spent grain specific

carbohydrates and the formation of degradation products using model compounds, Carbohydrate Polymers, 184, 315-322. https://doi.org/10.1016/j.carbpol.2017.12.038.

Parniakov, O., Toepfl, S., Barba, F., Granato, D., Zamuz, S., Galvez, F., Lorenzo Rodriguez, J.M., (2018) Impact of the soy protein replacement by legumes and algae based proteins on the quality of chicken rotti. Journal of Food Science and Technology - Mysore. DOI: 10.1007/s13197-018-3175-1.

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Fauster, T., Schlossnikl, D., Rath, F., Ostermeier, R., Teufel, F., Toepfl, S., Jaeger, H. (2018) Impact of pulsed electric field (PEF) pretreatment on process performance of industrial French fries production. Journal of Food Engineering 235:16-22. DOI: 10.1016/j.jfoodeng.2018.04.023

Smetana S., Pernutz C., Toepfl S., Heinz V., Van Campenhout L. (2018). High-moisture extrusion with insect and soy protein concentrates: cutting properties of meat analogues under insect content and barrel temperature variations. Journal of Insects as Food and Feed (in press).

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Biotechnology for Biofuels20169:94. DOI: 10.1186/s13068-016-0508-z

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