

## **Contr. talk - What neutrons tell us about meat analogues**

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For a rational redesign of the production of meat analogues one should understand the formation kinetics of a good texture. Neutron scattering yields all kind of information on the bulk of the meat analogues. We used several neutron techniques to characterise these materials. We performed most measurements on calcium caseinate based meat replacements [1]. Quasi-elastic neutron scattering has showed the importance of the molecular mobility of the proteins [2]. Small-angle neutron scattering has showed at which length scale the orientation of the fibres goes from isotropic to aligned. With neutron refraction the air bubbles in meat analogues have been quantified

[3]. This knowledge will help to further improve the methods for meat analogues production. The holy grail in this research is now to apply these methods in situ while processing the materials.

1. B.Tian, V. Garcia Sakai, C.P. Pappas, A.J. van der Goot, W.G. Bouwman *Chemical Engineering Science* 207 1270-1277 (2019)

2. B.Tian, Z. Wang, L. de Campo, E.P. Gilbert, R.M. Dalgliesh, E. Velichko, A.J. van der Goot, W.G. Bouwman *Food Hydrocolloids* 106 105912 (2020)

3. B.Tian, Z. Wang, A.J. van der Goot, W.G. Bouwman *Food Hydrocolloids* 83 287-295 (2018)

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