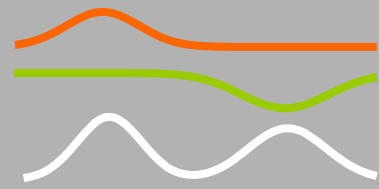




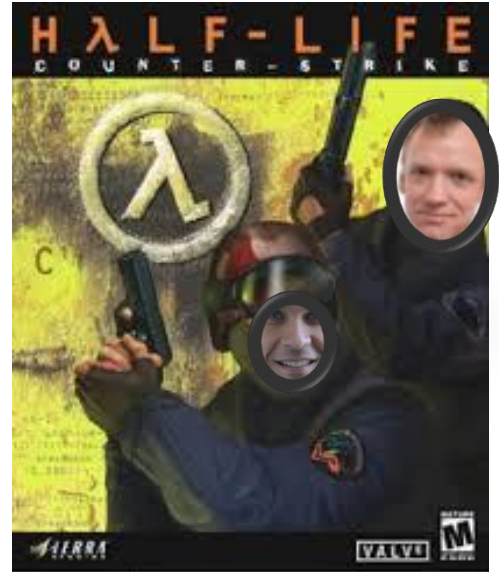
Spectroscopy & Chemometrics



ISSUE 41 (OCTOBER-DECEMBER 2014)

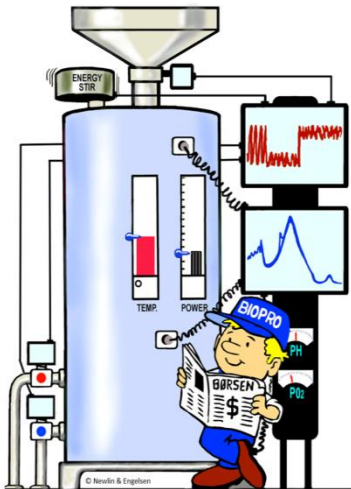
COUNTERSTRIKE: COUNTERACTING SARCOPENIA WITH PROTEINS AND EXERCISE – SCREENING THE CALM COHORT FOR LIPOPROTEIN BIOMARKERS

SPECC associates Francesco Savorani and Søren B. Engelsen received a major grant from the Innovation Fund Denmark. The main aim of COUNTERSTRIKE is to develop a NMR tool for rapid individual assessment of sarcopenia based on robust metabolome and lipoprotein profiling and to establish decision tools to counteract sarcopenia on the individual level. Project partners are University of Copenhagen, Bispebjerg Hospital, University of Amsterdam, ARLA, UNILEVER and BRUKER.



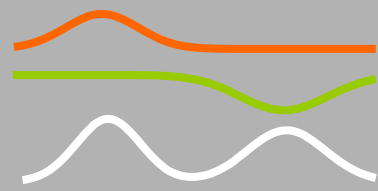
BIOPRO

Quality & Technology
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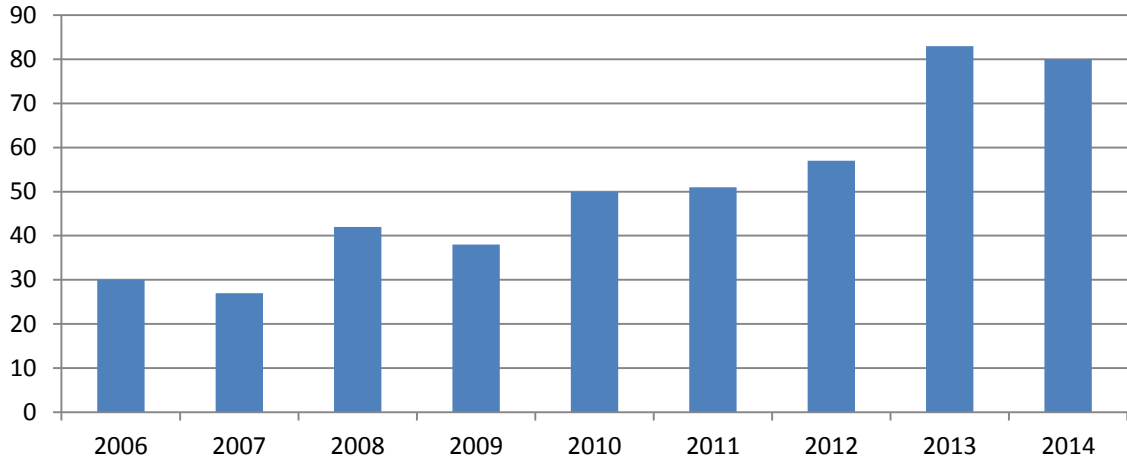


BIOPRO II

SPECC received a major grant for the continuation of the BIOPRO project from the Innovation Fund Denmark and regional EU funds. BIOPRO is about development of the next generation of optimized and sustainable processes. A research platform that is focused on research in and optimization of sustainable full scale bioproductions. SPECC associate Thomas Skov will continue as daily leader. Project partners are The Technical University of Denmark, Chr. Hansen, CP Kelco, DONG Energy, Novo Nordisk and Novozymes.



SPECC peer reviewed publications 2014



Peer reviewed publications Oct-Dec 2014:

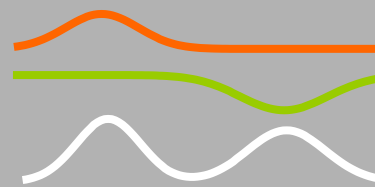
JX Wu, S Rehder, F van den Berg, JM Amigo, JM Carstensen, T Rades, CS Leopold, J Rantanen. Chemical imaging and solid state analysis at compact surfaces using UV imaging. *International Journal of Pharmaceutics*. 477 (1-2), 527–535, 2014.

E Garcia, I Klaas, JM Amigo, R Bro, C Enevoldsen. Lameness detection challenges in automated milking systems addressed with partial least squares discriminant analysis. *Journal of Dairy Science*. 97 (12), 7476–7486, 2014.

SH Libardi, H Pindstrup, JM Amigo, DR Cardoso, LH Skibsted. Reduction of ferrylmyoglobin by cysteine as affected by pH⁺. *RSC Advances*. 4 (105), 60953–60958, 2014.

M Mikkelsen, S Cornali, M Jensen, M Nilsson, SR Beeren, S Meier. Probing interactions between β -glucan and bile salts at atomic detail by ^1H - ^{13}C NMR assays. *Journal of Agricultural and Food Chemistry*. 62 (47), 11472–11478, 2014.

CE Eskildsen, MA Rasmussen, SB Engelsen, LB Larsen, NA Poulsen, T Skov. Quantification of individual fatty acids in bovine milk by infrared spectroscopy and chemometrics: Understanding predictions of highly collinear reference variables. *Journal of Dairy Science*. 97 (12), 7940–7951, 2014.



Peer reviewed publications Oct-Dec 2014:

A Gottberg, M Stachura, M Kowalska, ML Bissell, V Arcisauskaite, K Blaum, A Helmke, K Johnston, K Kreim, FH Larsen, R Neugart, G Neyens, RF Garcia Ruiz, D Szunyogh, PW Thulstrup, DT Yordanov, L Hemmingsen. Billion-fold enhancement in sensitivity of nuclear magnetic resonance spectroscopy for magnesium ions in solution. *ChemPhysChem*. 15 (18), 3929 – 3932, 2014.

H Sørensen, K Mortensen, GH Sørland, FH Larsen, M Paulsson, R Ipsen. Dynamic ultra-high pressure homogenisation of milk casein concentrates: Influence of casein content. *Innovative Food Science and Emerging Technologies*. 26, 143–152, 2014.

K Kamatara, D Mpairwe, M Christensen, CE Eskildsen, D Mutetikka, J Muyonga, D Mushi, S Omagor, Z Nantongo, J Madsen. Influence of age and method of carcass suspension on meat quality attributes of pure bred Ankole bulls. *Livestock Science*. 169, 175–179, 2014.

S Ebrahimi, Y Akhlaghi, M Kompany-Zareh, Å Rinnan. Nucleic acid based fluorescent nanothermometers. *ACS Nano*. 8 (10), 10372–10382, 2014.

MS Mikkelsen, F Savorani, MA Rasmussen, BM Jespersen, M Kristensen, SB Engelsen. New insights from a β -glucan human intervention study using NMR metabolomics. *Food Research International*. 63, 210–217, 2014.

B Khakimov, BM Jespersen, SB Engelsen. Comprehensive and comparative metabolomic profiling of wheat, barley, oat and rye using gas chromatography-mass spectrometry and advanced chemometrics. *Foods*. 3 (4), 569–585, 2014.

KM Sørensen, SB Engelsen. Measurement of boar taint in porcine fat using a high-throughput gas chromatography–mass spectrometry protocol. *Journal of Agricultural and Food Chemistry*. 62 (39), 9420–9427, 2014.

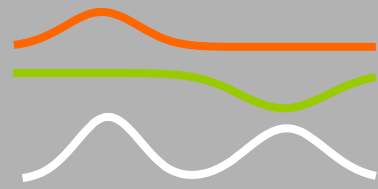
MS Andersen, Å Rinnan, C Manach, SK Poulsen, E Pujos-Guillot, TM Larsen, A Astrup, LO Dragsted. Untargeted metabolomics as a screening tool for estimating compliance to a dietary pattern. *Journal of Proteome Research*. 13 (3), 1405–1418, 2014.

HH Holst, F van den Berg, SB Engelsen. Water reuse and saving in the food industry: A new frontier in food manufacturing. *New Food*. 17 (6), 49–53, 2014.

DT Berhe, SB Engelsen, MS Hviid, R Lametsch. Raman spectroscopic study of effect of the cooking temperature and time on meat proteins. *Food Research International*. 66, 123–131, 2014.



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Other publications Oct-Dec 2014:

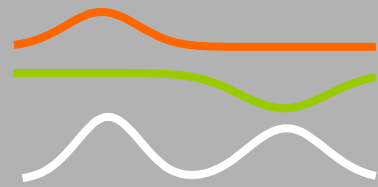
KR Murphy, R Bro, CA Stedmon. Chemometric analysis of organic matter fluorescence. In: *Fluorescence Applications in Aquatic Science*. Chapter 10, 339-376, 2014.

Media:

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Spectroscopy & Chemometrics



Staff:

- Peter Bæk Skou, PhD student 1/10 2014 – 30/9 2017 (F van den Berg)
- Ingelise Møller Larsen, MSc student 1/12 2014 – 31/8 2015 (N Viereck)

Guest Researchers:

- Prinya Wongsu 3/11 – 31/12 2014 (host FH Larsen)
- Richard Mongi 3/11 2014 – 28/2 2015 (host SB Engelsen)
- Ruth C. Rowland-Jones 3/11 – 7/11 2014 (host F van den Berg)
- Leandro de Moura Franca 1/10 – 29/11 2014 (host JM Amigo)

PhD defences:

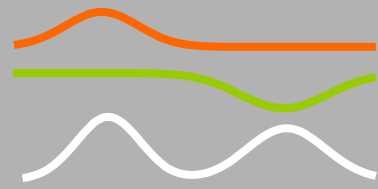
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BSc & MSc defences:

- Jesper Kailow Hejselbæk, MSc (supervisor R Bro): Relationship between chemical data, taste profiles and consumer data of beer. October 7th, 2014.
- Ingelise Møller Larsen, MSc (supervisor T Skov): Determination of oil content in water. November 3rd, 2014.
- Antonio Patta, MSc (supervisor F van den Berg): Stilton cheese - shape and size impact on maturation. November 18th, 2014.
- Søren Mellekjær Jensen, MSc (supervisor F van den Berg): Optimization of sample presentation for at-line NIR spectroscopy in pectin production. November 28th, 2014.



Spectroscopy & Chemometrics



Courses Oct-Dec:

Block 2:

- Advanced Chemometrics (R Bro, 20 stud.)
- Quantitative Bio-spectroscopy (N Viereck, SB Engelsen, FH Larsen, 18 stud.)
- Advanced Carbohydrate Technologies (FH Larsen, SB Engelsen, 8 stud.)
- Brewing 1 (F van de Berg, 10 stud.)
- PhD: Quantitative Food Spectroscopy (N Viereck, SB Engelsen, FH Larsen, 7 stud.)
- ODIN: ¹H-NMR metabolomics 19/11 2014
- ODIN: A day of 100 Projects 10/12 2014

New granted projects:

- COUNTERSTRIKE – COUNTERacting Sarcopenia with proTeins and exeRcise – Screening the CALM cohort for Ilpoprotein biomarkERs. Søren Balling and Francesco Savorani, Innovation Fund Denmark
- BIOPROII – BIO-based PROduction: Towards the next generation of optimized and sustainable processess. Thomas Skov, Frans van den Berg and Søren B. Engelsen, Innovation Fund Denmark