



## **6. Milk Analysis Workshop 1 Securing Value from Milk Analysis**

### **Title presentation**

Atypical Spectra Screening: Potential Applications for Monitoring the Stability of FT-IR Instruments

### **Author(s)**

L. Spieß

### **Institution for which the first author of this abstract is working**

Qlip B.V., P.O. Box 119, 7200 AC Zutphen, The Netherlands

### **Abstract**

Fourier-Transform Mid-Infrared (FT-MIR) spectrometry is a recognized and widely used method to determine the compositional quality of raw milk and other liquid milk products. In recent years, mathematical models were developed that are capable of detecting atypical milk samples. Here we show how atypical spectra screening can also be used to monitor variations in the spectra that are related to the instrument performance rather than the to the characteristics of the milk. By studying the temporal dynamics of spectra anomaly scores, it is possible to detect instrument drift in real-time. We also show how cluster algorithms are capable of identifying specific measurement artifacts and can help in identifying potential causes thereof. Such information can provide insights in the maintenance status of infrared instruments and changes in the environment during the measurements. This, in turn, is important to ensure a consistent quality of infrared measurements and chemical profiling of milk samples.

Key words: milk, infrared spectrometry, atypical spectra screening