**NIRS for sustainable agriculture and food production: past, present, and future**

*Daniel Mörlein*

Georg-August Universität Göttingen

Email: [*daniel.moerlein@uni-goettingen.de*](mailto:daniel.moerlein@uni-goettingen.de)

**Abstract**

Since its first applications mid past century, near infrared spectroscopy (NIRS) has become a widespread technique for quality assessment, fraud detection, and process control all of which are relevant to agriculture and food production. NIRS is based on molecular vibrations, i.e. interactions of a sample’s molecules with incident light. It is non-destructive, fast and typically no or little sample preparation is involved which is why it can be called a green technology. Its application helps also reducing costs and resources thus contributing directly to achieving the UN sustainable development goals (SDGs). This talk will cover some basic concepts behind NIRS, current research into its application in the agri-food sector, and an outlook on ongoing developments and future applications. It is anticipated that advances in miniaturization, cloud-computing and further cost-reduction will likely contribute to even more widespread applications in the future.