

Pocket-sized optical spectroscopy: revolutionising food analytics at your fingertips

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Optical spectroscopy is transforming food analysis by providing a cost-effective and eco-friendly alternative to traditional methods. With its ability to deliver rapid and non-destructive measurements without the need for harmful chemicals or solvents, it allows green analytics for food quality and safety assessment. By integrating AI-powered algorithms, optical spectroscopy can decode complex data and perform simultaneous analysis of multiple food components. A single flash of light, combined with advanced spectroscopic training, enables comprehensive quantitative and qualitative assessments of various nutraceutical indicators in one go. It's an intelligent and sustainable solution for achieving superior food quality and safety standards.

Some of the latest and most compact optical spectroscopy devices will be presented, and their applications in food and agriculture. A special attention will be given to those operating in the near-infrared, and to pocket-sized and smartphone-connected devices.

Short Bio:



Anna G. Mignani a physicist by training and PhD in non-destructive testing, is Senior Research Associate at the Italian National Research Council, where she worked since 1984, recently as Research Director. Her work started with fiber optic sensors, then continued with optical spectroscopy-based sensors for environmental and industrial applications. Her most recent activity focuses on visible and near-infrared spectroscopy for food applications, especially for multicomponent

analysis of quality and safety indicators by means of a single light shot and multivariate processing of spectroscopic data. She has been visiting scientist in laboratories in Belgium, Ireland and PR China. She is SPIE Fellow, and served the SPIE Board of Directors for the 2016-2018 term. Currently, she is Member-at Large of the IEEE Sensors Council, which she served as Chair of the Diversity and Inclusion Committee for the 2023-2024 term.