

Abstract for 'FAST(est)'

There's light at the end of the tube – Application of a liquid core waveguide as a light-induced degradation cell

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Many organic compounds undergo changes under the influence of light. This might be beneficial in, for example, water purification, but undesirable when cultural-heritage objects fade or when food ingredients (e.g., vitamins) degrade. It is often challenging to establish a strong link between photodegradation products and their parent molecules due to the complexity of the sample. To allow effective study of light-induced degradation (LID), a low-volume exposure cell was created in which solutes are efficiently illuminated (especially at low concentrations) while simultaneously analysed by absorbance spectroscopy. The new LID cell encompasses a gas-permeable liquid-core waveguide (LCW) connected to a spectrograph allowing collection of spectral data in real-time. During this talk, I will show the overall performance of an LCW as an LID cell including its transmission characteristics, the absolute photon flux achieved in the LCW, and its capacity to study solute degradation of crystal violet and eosin Y in the presence of oxygen.