

Dispersion artifact correction in single cell microspectra

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The dispersion, or reflection artifact, occurs at the edges of tissue and cells in high numerical aperture measurements; and (in single cells) could result from insufficient contact between the sample and the substrate. The dispersion effect is particularly strong when using low-e slides or IR substrates that have a high refractive index.

Infrared spectra affected by the dispersion artifact exhibit a shift of the Amide I band (to lower wavenumbers) an unusual Amide I to Amide II band ratio, and a sharp, sloping baseline. In severe cases the low wavenumber (Amide II, phosphate) bands may also be affected

We present the results of a novel algorithm, based on the calculation of the power spectrum, to remove the effects of the dispersion artifact.