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Determination of infrared complex refractive index of microbial materials

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Highlights

- An exponential extrapolation method combined with Kramers-Kronig(KK) transform is presented to systematically retrieve the complex refractive index of biological materials for the first time.
- An iterative method is applied to seek the appropriate coefficients of exponential extrapolation to expand the reflection spectra for the first time.
- Exponential extrapolation method is put forward to provide a perfect solution about the problems caused by constant extrapolation method, which may derive the negative imaginary part of complex refractive index from biological materials.
- Error analysis of the complex refractive index's retrieval caused by oblique incident and different coefficients is discussed in detail.

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