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Lidar cross-sections of soot fractal aggregates: Assessment of equivalent-sphere models

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Highlights

- Lidar cross-sections computed with a spectral discrete dipole approximation model over the visible-to-infrared (400–5000 nm) spectrum and compared with equivalent-sphere approximations.
- Assessment of equivalent-sphere models to reproduce the optical properties of soot aggregates relevant for lidar remote sensing, *i.e.* the backscattering and extinction cross sections.
- Equivalent-sphere models, applied to fractal aggregates, should be used with caution for the computation of broadband lidar cross-sections, especially backscattering, at small and intermediate wavelengths (e.g. UV to visible).

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