Validating a Radiative Transfer Model for Optically Thin Deposits

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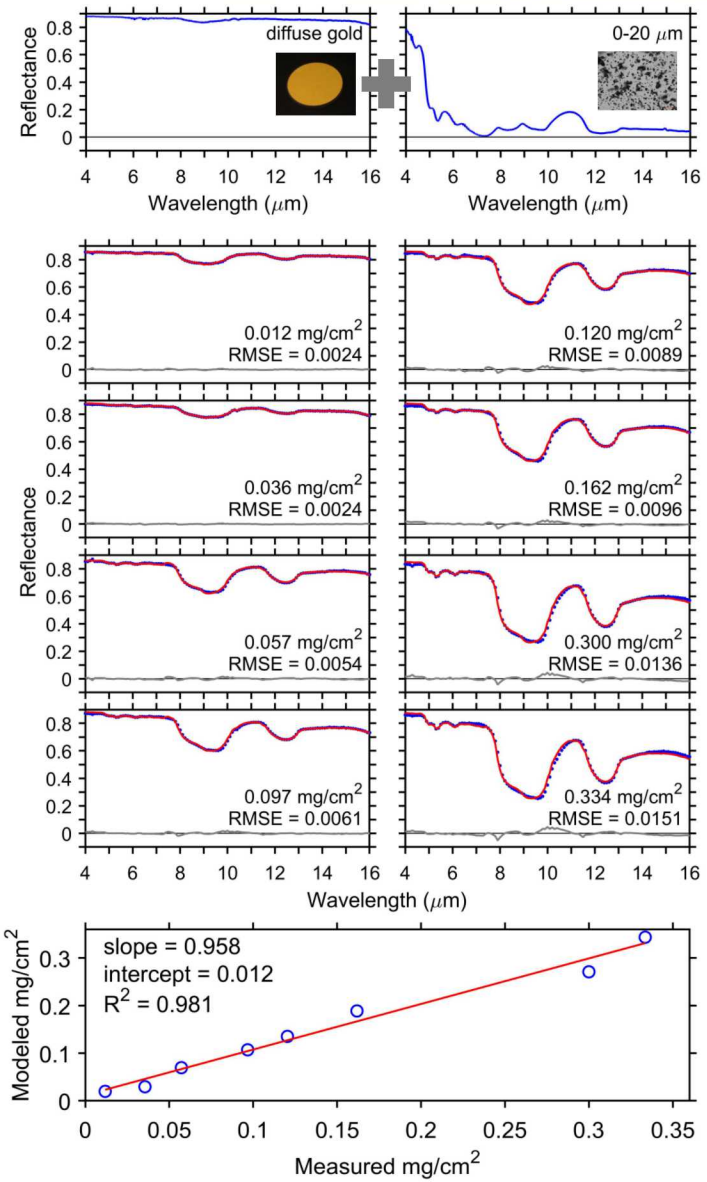
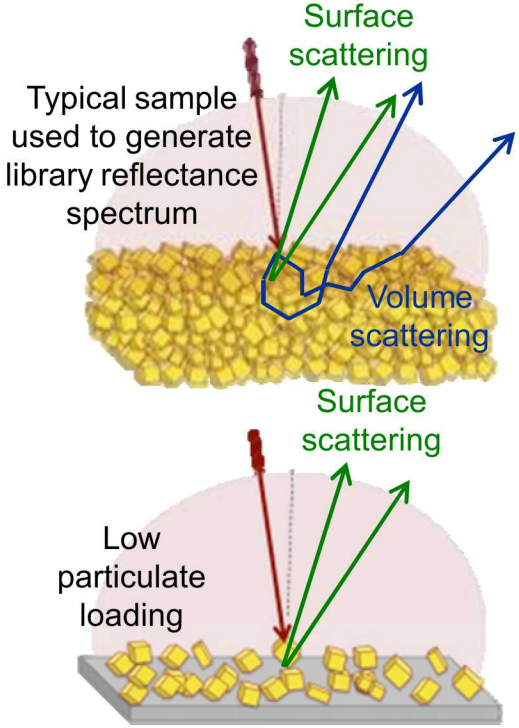
Defense Nuclear Nonproliferation



- Optically thin deposits can exhibit strikingly different signatures from optically thick library spectra.
  - *Account for this via predictive modeling*
- Developed a "patched" radiative transfer model based on the adding-doubling method
  - *Previously applied this model (in FY17) to MOI spectrum*
- Acquired measurements of two size-selected fused silica powders deposited on two different substrates at 8-10 mass loadings (mg/cm^2) each.
- Numerically inverted model *effectively captures the spectral features* of these optically thin deposits
  - *RMSE < 0.02 for all 34 spectra*
- Model *effectively extracts mg/cm^2* of the deposits as well.



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