P4958: A new strategy for collection of high-temperature broad-band absorption spectra for gas-phase molecules in the mid-infrared

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Motivation:

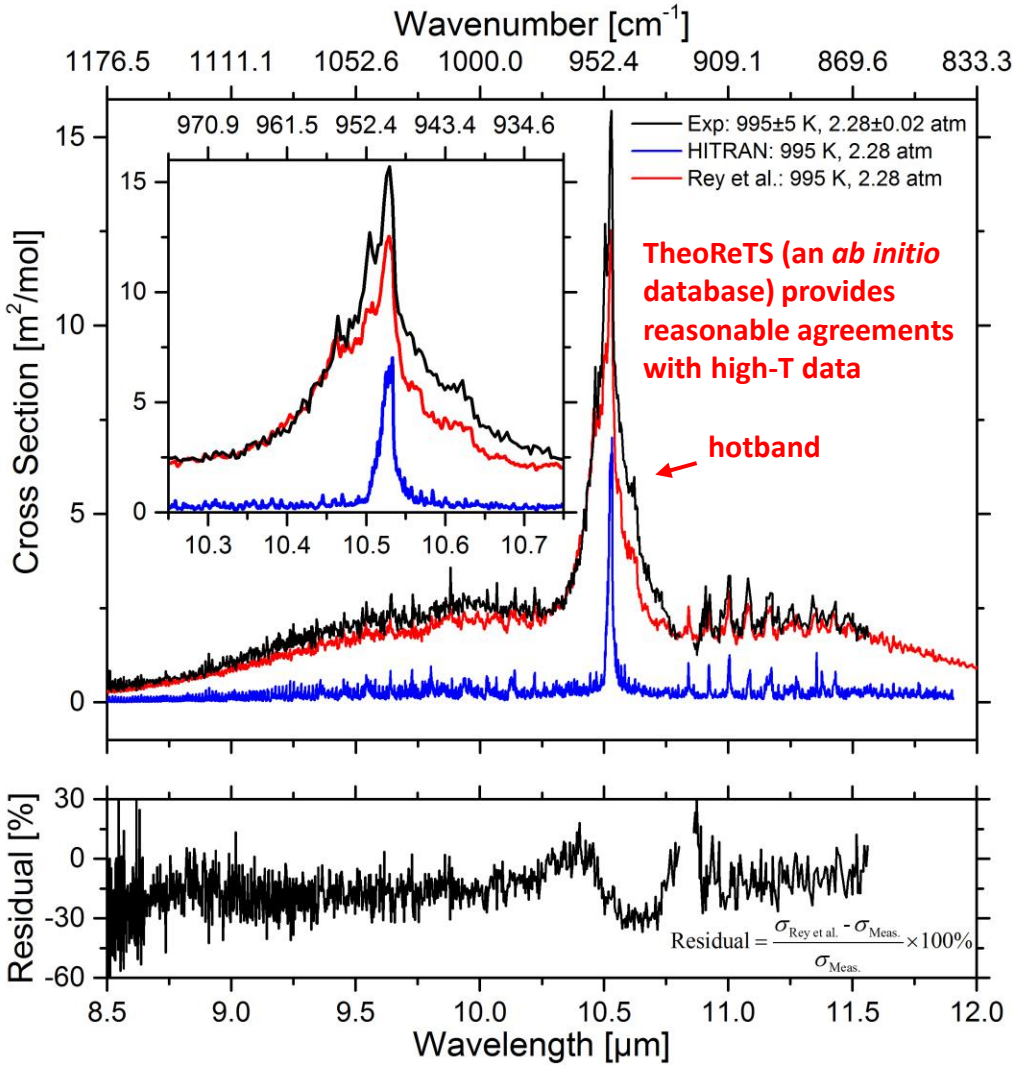
A lack of knowledge on broad-band molecular absorption at elevated temperatures

Novelty:

Interplay of a rapid-tuning broad-scan EC-QCL with shock tube facilities (collection rate: **>30,000 cm^{-1}/s**)

Results and Discoveries:

- ❑First measurements of ethylene full-band absorption near 10 μm at 1000 K
- ❑Strong temperature dependence in the Q-branch between 800 – 1600 K
- ❑Readily deployable for molecules that absorb between 3.6 – 11.7 μm



Measurements of ethylene (C_2H_4) γ_7 vibrational band at 1000 K

This work is sponsored by Air Force Office of Scientific Research, U. S. Army Research Laboratory, and the U. S. Army Research Office