HITRAN APPLICATION PROGRAMMING INTERFACE (HAPI): EXTENDING HITRAN CAPABILITIES

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In this talk we present an update on the HITRAN Application Programming Interface (HAPI) [bc]. HAPI is a free Python library providing a flexible set of tools to work with the most up-to-date spectroscopic data provided by HITRANonline (www.hitran.org) [de]. HAPI gives access to the spectroscopic parameters which are continuously being added to HITRANonline. For instance, these include non-Voigt profile parameters [f], foreign broadenings and shifts [g], and line mixing. HAPI enables more accurate spectra calculations for the spectroscopic and astrophysical applications requiring the detailed modeling of the broadener. HAPI implements an expert algorithm for the line profile selection for a single-layer radiative transfer calculation, and can be extended by custom line profiles and algorithms of their calculations, partition sums, instrumental functions, and temperature and pressure dependences. Possible HAPI applications include spectroscopic data validation and analysis [h] as well as radiative-transfer calculations, experiment verification and spectroscopic code benchmarking.

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