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SELF- AND AIR-BROADENED LINE SHAPE PARAMETERS OF METHANE IN THE 2.3 MICRONS RANGE

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Methane is an important greenhouse gas in the terrestrial atmosphere and a trace gas constituent in planetary atmospheres. We report measurements of the self- and air-broadened Lorentz widths, shifts and line mixing coefficients along with their temperature dependences for methane absorption lines in the 2.22 to 2.44 microns spectral range. This set of highly accurate spectral line shape parameters is needed for radiative transfer calculations in terrestrial or planetary atmospheres. This research was performed in collaboration with colleagues from the College of William and Mary, Williamsburg, VA, NASA Langley Research Center and Jet Propulsion Laboratory.

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