

# Infrared spectroscopy of astrophysically relevant hydrocarbons $\ensuremath{\mathsf{Doney}}$ , K.D.

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#### Propositions accompanying the thesis

## Infrared spectroscopy of astrophysically relevant hydrocarbons

- 1. Calculated infrared spectroscopic constants can be remarkably accurate, but gain substantially in impact when confirmed by experimental values. (Chapters 2, 6)
- 2. The band observed at 1115.0 cm<sup>-1</sup> for HC<sub>6</sub>H assigned as the  $\nu_7$  fundamental band in (Haas *et al.*, J.M.S., 164 (1994a) 445) is due to the  $\nu_9 + \nu_{11}$  combination band. (Chapter 2)
- 3. The first high-resolution infrared spectrum of c-C<sub>3</sub>H<sub>3</sub><sup>+</sup> offers an important tool to investigate gas-phase hydrocarbon formation mechanism in space. (Chapters 7)
- 4. The level of PAH deuteration is highly environment dependent. (Chapter 8)
- 5. Given the advancements of the field of astrochemistry, it would be beneficial for astronomy students to also study chemistry courses.
- 6. Both low temperature and high/room temperature spectra of a molecule is needed for complete perturbation analysis. (Kerstel *et al.*, J.C.P., 100 (1994) 2588)
- 7. Small molecules can be complex.
- 8. Administrations should recognize that diversity makes for better science.
- 9. It would be good to have an app that warns for addictive use of apps.
- 10. The power of coffee should not be underestimated in the timely meeting of deadlines.
- 11. Often positivity means more to success than skill alone.