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Decoding Pure Rotational Molecular Spectra for Asymmetric Molecules

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(Submitted on 14 Apr 2012)

In this paper we demonstrate how asymmetric molecular rotational spectra may be introduced to students both "pictorially" and with simple formulae. It is shown that the interpretation of such spectra relies heavily upon pattern recognition. The presentation of some common spectral patterns in near-prolate asymmetric rotational spectra provides a means by which spectral assignment, and approximate rotational constant determination, may be usefully explored in the physics and chemistry classrooms. To aid in this endeavor we have created a supporting, free, web page and mobile web page.

Comments: 20 pages, 11 figures

Subjects: **Physics Education (physics.ed-ph)**; Chemical Physics (physics.chem-ph)

Cite as: **arXiv:1204.3226v1** [physics.ed-ph]

Submission history

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[v1] Sat, 14 Apr 2012 23:18:21 GMT (980kb)

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