My Longterm Relationship with a Difficult Molecule

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This talk reviews the spectroscopy of the NO$_3$ radical, which is both fascinating for theoreticians as well as an important player in the environment. In particular, the quest to fully understand the spectroscopy of NO$_3$ – which has not yet been achieved – has been a “hobby” of mine for essentially the entirety of my scientific career. I will attempt to present a brief history of the science done on this molecule since 1881 as a contextual frame for my own theoretical efforts to understand its spectra and electronic states. The journey starts during my graduate school days, when I was naive and knew nothing. It continues through current times. While I still don’t know very much, I have learned a lot along the way that I will share with you.