We thank all of the reviewers for their helpful comments and have revised the manuscript in response to these comments. Detailed responses are given below. We hope that this paper is now suitable for publication in JCP.

We noticed one mistake in our manuscript. We previously used the incorrect isotope mass for all the Boron simulations. This caused an error of approximately 0.1mHa for those affected simulations, and does not change any of our conclusions. We are now a bit more accurate in comparison to our reference data. We now added a footnote that includes all the masses we used in our simulations.

We also noticed that the error bars for the non-adiabatic dissociation energy row Do (FN-DMC) in Table III was out of sync with the rest of the Table. We have corrected this error and updated Figure 7 which was the only figure that was affected. The only change is that the error bars for CH, OH and HF are now visible.

*Editor’s review:*

*You might note that eqn 5 does not match the experimental data for the one electron atomic ions because the Z^4 relativistic correction swamps this effect. The non-adiabatic effect is roughly linear in Z because M is almost linear in Z, 1-mu = 1/(M+1)~ 1/Z.*

We have added a sentence in the manuscript stating this fact, and included a reference.

*There is more interest in the change in the correction with R for diatomics. For H2 we know this is small compared to the actual correction.*

It is indeed possible to calculate R from our wave function. Unfortunately, it can sometimes be challenging to calculate quantities, beyond the energy, accurately with DMC. Also, we do not have these data from our current simulations. Testing and benchmarking other observables beyond the energy is a direction we are considering for future work.

*From your data you could estimate the contribution to the dissociation energy using the non-adiabatic correction your diatomic and atomic energies.*

We have calculated the nonadiabatic correction to the dissociation energies and included them in Table IV, which is an entirely new table. The DBOC corrections to the atomic systems are now also available in Table II, which is also an entirely new table.

*You could also estimate the correction to the vibrational frequency.*

We do not think this can be done straightforwardly with our current data. Both nuclei, as well as all electrons, are treated quantum mechanically, leading to a mixed nuclear-electronic wavefunction, and only the ground state is calculated, so the vibrational frequency is not readily available.

*Reviewer 1:*

*On page 6 the text states, “…the nonadiabatic results agree closely with their adiabatic counterparts…”. That is as expected, but because the dissociation energies in Table II are given as De and then later as D0 it is not possible to tell exactly how large the nonadiabatic corrects actually are. They are quite small.*

The nonadiabatic corrections to D0 are now reported in Table IV.

*In addition, the DBOCs are relatively insensitive to the level of theory. Perhaps a comment to that effect would be helpful for the reader to put things into perspective.*

We have included a sentence stating this.

*Pg. 2 The abbreviation ECG appears to be undefined at this point in the text. Please define. I assume it means “explicitly correlated Gaussian”.*

The acronym (explicitly correlated Gaussian) has been defined for ECG.

*Pg. 4 Sometimes the term “non-adiabatic” appears in the text and other times it uses “nonadiabatic”. Please be consistent.*

All occurrences of “non-adiabatic” have been replaced with “nonadiabatic”.

*Pg. 6 “Finding accurate reference data…is not straightforward. We will use highly converged ECG data when available.” Break the sentence for the sake of improving the readability.*

This sentence has now been broken into two sentences.

*Pg. 7 In the title to Table II it should be made clear that both the total energies and dissociation energies are given in Hartrees. It’s relatively unconventional to report De values in Hartrees.*

We now explicitly state in the caption of Table II that “Both total energies and dissociation energies are given in units of Hartree”.

*Pg. 9 An extraneous lower case “p’ appears in reference 57.*

The typo in the reference has been corrected.

*Reviewer 2:*

*This is a careful study of the handling of non-Born-Oppenheimer electron-nuclear interactions within the realm of Monte Carlo simulations.*

Thank you for reading the manuscript and for your positive comment.