Thank you very much for taking the time to review our article. We have addressed each of your concerns as follows:

- "Line 33: "with" in front of high-energy missing."

Fixed, although we chose "from" instead of "with"

- "Figure 1: It would be more self-consistent to define all letters (physical quantities) in the figure caption…"

Added those definitions to the caption.

- "Line 46-50: Somehow the logic seems reversed…the paper should be self-contained, so even though they refer to earlier work they should spend 5 lines on explaining the principle of the experiment. Only then it is clear where the improvement comes from (which they then explain well)."

Thank you for this comment. We added a paragraph going over how the experiment works, and why it is important to accurately measure the voltage on the electrodes and the distance between those electrodes. When the atoms in the interferometer pass through the electric field, they get a phase shift that depends on their polarizability as well as the geometry of the electric field. If we can 1) measure the phase shift very precisely and 2) measure the electric field geometry very accurately, we can "solve" for the atoms' polarizability.

- "Line 92 and following: It may be worthwhile to comment on the line splittings in the ground and excited state. The equations assume the atom as a 2-level system (but with a multiplicity g). A short comment on how the hyperfine splitting, and (admittedly very small) Zeeman splitting (in particular for static polarizabilities) are relevant may add to the tutorial value of this work. Which hyperfine state is taken for omega1 and omega2… or mention that on the accuracy level of 0.1% this does not make a difference,"

We added a statement about this at the end of the paragraph following Eqn 10. The transition frequencies we use are defined with respect to the center of gravity of the hyperfine states associated with each of the ns_{1/2}, np_{1/2}, and np_{3/2} levels. The energy shifts due to hyperfine splitting change the transition frequencies by no more than 1 part in 10^5, which is insignificant on the accuracy level of 0.1%.

- Eq. 22: It may be useful to optimize the type setting to avoid stapled double fractions with tiny letters.

We reformatted the equation so as only to contain 1 level of nested fractions rather than 2. Now it is easier to tell the difference between subscripts and normal scripts.

- Line 178 an article in front of "error"?

We added "an" to reduce confusion.

- Figure 7: Subscripts too small… hard to read.
- Figure 8: as in 7 … at least in the review manuscript

Enlarged subscripts in Figs 7, 8, and 9.

- Figures generally: better no "light green" as it does not provide a high contrast. Since red-green blindness is wide-spread… it is better to use dashed/dotted/solid lines and pairs of colors other than red and green.

Removed all instances of light green. Added different dash patterns to the differently-colored lines in Fig 5, and changed the green line to blue. Green points in Figs 7 and 9 are now nearly black (actually very dark purple), and the marker styles also differentiate between data types so that colors are actually unnecessary. We were not able to easily change the line styles in Fig 8, however we hope that black, dark green, and light purple will be at least somewhat easily differentiated if the graph is printed in grayscale.