

## Review of He and Reiners R1, Geochronology

I thank the authors for taking my suggestions into account. The paper is mostly ready for publication, in my opinion. I have a few final suggestions, which they can take or leave:

[line 83] “those from” can be deleted.

[line 90] Replace “occurred recent relative the timing of” with “post-dated”.

[line 180] “(but not the same as the original unbroken crystal)” can probably be deleted. I think this is a reminder of the conceptual difference between their correction and the original one proposed by Farley, but it’s not really necessary and potentially confusing in this context.

[line 207; Equation 6] The  $4/\sqrt{3}$  should be surrounded by parentheses, and the “s” should be put back on the end of “ends”. At the same time, the authors might want to consider an alternative way of presenting the equations. It might be a little less confusing to use only one equation and introduce a variable  $L_{fc}$  (or something like that) for fragmentation-corrected length, which is  $2L$  for crystals broken on one end and approaches infinity (but is approximated as  $20L$ ) for crystals broken on both ends. That way the reader does not have to remember that the extra factor of 2 is a stealth addition to both the numerator and denominator of Eq. 5, and also makes it easier to apply to different beta equations for other crystal morphologies, by just replacing  $L$  with  $L_{fc}$ .

[line 218] The phrase in parentheses does not add anything, and distractingly implies that zircon fragments are not common, which will certainly vary from place to place. A better addition might be a reminder that a different beta equation would apply for zircon.

[line 236] Replace “when these assumptions are relaxed. In other words, (B)” with “which”

[line 273 and 385] It might be better to say “violated” rather than “relaxed”, because the assumption is not really changed, only whether the synthetic data obey the assumption.

[line 352] Delete “a” before “fragment”