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January 18, 2018

Nature Astronomy
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Dear Editor,

I would like to express my interest in submitting a Letter to *Nature Astronomy*, on the "Detection of Oscillations in Aldebaran with Ground-Based Observations".

Aldebaran (α Tauri, the Eye of the Bull) is a nearby first-magnitude red giant star. Since the identification of the planet candidate Aldebaran b in 1993 in the first modern radial velocity (RV) surveys, the existence of a massive planet orbiting the star has been firmly established with a further two decades of observations.

One astronomer's noise is another astronomer's data: we have found that the noise in these archival observations is actually the signal of stellar oscillations. With radical new data processing techniques, we have re-analysed historical RV data and confirmed our result with new observations. Using our Gaussian Process-based model we detect the signal of stellar oscillations, missed by previous authors but uncovered by our powerful new algorithms, and consequently infer much more accurate orbital parameters for the planet. With asteroseismology we constrain the star's age for the first time, measure its mass with a factor of two better precision than had previously been possible (to 6%), and consequently obtain the mass of the giant planet to a precision of 12%.

We have also independently confirmed our results with new photometry from the *Kepler*-2 (K2) mission, again using a highly novel data processing technique to extract a precise light curve of the brightest star ever observed by *Kepler*. The K2 light curve shows extremely clear oscillations that are in perfect agreement with the frequency we infer from RV.

A neat and surprising result of this work is that while the planet has a hellish temperature today well upwards of a thousand Kelvin, when Aldebaran was on the main sequence, the planet (and more importantly any of its moons) would have been subject to similar incident starlight as the Earth receives from the Sun. We posit that this is the first clear example of a formerly-habitable world destroyed by stellar evolution.

Thank you for considering our submission. Please do not hesitate to contact me with any questions you may have.

Yours sincerely,

Will Farr