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December 22, 2017

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 naked-eye red giant star. Since the identification of the planet candidate Aldebaran b in 1993 in the first modern radial velocity (RV) surveys, a further two decades of observations have firmly established the existence of a massive planet around the star.

With radical new data processing techniques, we have re-analysed these historical RV data and augmented them with new observations of our own. Using our Gaussian Process-based model we infer much more accurate orbital parameters for the planet, but also detect the signal of stellar oscillations, missed by previous authors but uncovered by our powerful new algorithms. 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 ever observed by *Kepler*, ten thousand times above its saturation limit. 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