ADDENDUM

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Ionic high-pressure form of elemental boron

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This Letter presents the results of high-pressure experiments and *ab initio* evolutionary crystal structure predictions, and found a new boron phase that we named γ -B₂₈. This phase is comprised of icosahedral B₁₂ clusters and B₂ pairs in a NaCl-type arrangement, stable between 19 and 89 GPa, and exhibits evidence for charge transfer (for which our best estimate is $\delta \approx 0.48$) between the constituent clusters to give (B₂) ^{δ^+} (B₁₂) ^{δ^-} . We have recently found that the same high-pressure boron phase may have given rise to the Bragg reflections reported by Wentorf in 1965 (ref. 1), although the chemical composition was not analysed and the data (subsequently deleted from the Powder Diffraction File database) seems to not have been used to propose a structure model. We also note that although we used the terms ‘partially ionic’ and ‘ionic’ to emphasize the polar nature of the high-pressure boron phase and the influence this polarity has on several physical properties of the elemental phase, the chemical bonding in γ -B₂₈ is predominantly covalent.

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1. Wentorf, R. H. Boron: another form. *Science* 147, 49–50 (1965).