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HIGHLIGHTS AND BREAKTHROUGHS

On understanding the structure and composition of crystals

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Abstract: Minerals come with complex chemical formulas and a variety of crystal structures, but although many different minerals are known, their number is far exceeded by the possible structures and compositions that apparently do not occur in nature. What is it that selects the particular combinations of compositions and structures that we observe? This is the question addressed in a recent paper in this journal by Frank Hawthorne (2015). He answers this question using bond valence theory that he carefully distinguishes from what he calls bond valence curves, more usually known as the bond valence sum (BVS) model widely used for the validation of new structure determinations.
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