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**A new theoretical approach to SmB<sub>6</sub> and related mixed valence compounds without Kondo physics** ALFRED CHEUNG, MONA BERCIU, ILYA ELFIMOV, GEORGE SAWATZKY, Univ of British Columbia — Currently, samarium hexaboride (SmB<sub>6</sub>) is widely thought of as a Kondo insulator with the formation of its hybridization gap being attributed to Kondo physics. This is in spite of the fact that Sm is strongly mixed valent and is hence incompatible with the Kondo scenario of fixed spins undergoing spin fluctuations. In this talk, we summarize arguments for why Kondo physics is inappropriate for the case of SmB<sub>6</sub>. We then present a new model in which the low energy scale atomic multiplet structure of SmB<sub>6</sub> and the strong Sm 4f valence fluctuations are properly taken into account, replacing Kondo lattice physics as the principal player in SmB<sub>6</sub>.

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