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**Comparison of the properties of flux and floating zone grown crystals of the Topological Kondo Insulator SmB<sub>6</sub>** GEETHA BALAKRISHNAN, TALHA AHMAD, MONICA CIOMAGA HATNEAN, MARTIN R. LEES, Department of Physics, University of Warwick, UK — Since the theoretical predictions that the well known Kondo Insulator SmB<sub>6</sub> exhibits topological behaviour, rapid progress has been made in the study of this new class of Topological Kondo Insulators (TKIs). Experimentalists have taken up the challenge to develop experiments designed to observe the topological surface states in SmB<sub>6</sub>, while working closely with theoreticians in order to understand the topological behaviour of this material. Despite the tremendous developments in the field, to this day, SmB<sub>6</sub> continues to puzzle researchers. Recent reports place particular emphasis on sample quality and the compositions of single crystals of SmB<sub>6</sub> synthesized using different methods and suggest that the physical properties they exhibit are greatly affected by any small variations in the composition. We have undertaken a detailed comparative study of the physical properties of flux and floating zone single crystals of SmB<sub>6</sub> through resistivity, magnetoresistance and Hall effect measurements. We present the correlation of these properties with the chemical composition as well as their surface chemistry.

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