Magnetic and Spectroscopic Properties of LiAuSn

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The stannide LiAuSn was synthesized by reaction of the elements in a sealed tantalum tube. Magnetic susceptibility measurements reveal Pauli paramagnetism. LiAuSn shows a single ^{119}Sn Mössbauer signal at an isomer shift of 2.12(3) mm/s subject to a quadrupole splitting of 1.51(2) mm/s. The ^{119}Sn MAS NMR spectrum reveals a strong Knight shift of 5183 ppm, The unique lithium site present in the crystal structure is reflected by a single ^{7}Li NMR signal at 9.8 ppm. While a significant shift of this resonance towards larger frequencies at higher temperature indicates that the *s*-spin density at the lithium sites increases with increasing temperatures, no motional narrowing occurs up to 470 K. This result indicates that the lithium ions are immobile on the NMR timescale within the temperature range observed.

Key words: Stannide, Solid State NMR, Mössbauer Spectroscopy