

## CHARACTERIZATION OF $C_3HSi^-$

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Structural and spectroscopic properties of the astrophysically relevant  $SiC_3H^-$  anion are investigated at the RCCSD(T) and CASSCF levels of theory. The molecule presents a total of 12 isomers (4 lineal and 8 cyclic), all of them showing singlet ground electronic states. The stability of the linear isomer  $l-SiC_3H^- (X^1\Sigma^-)$  is notorious. The B0 rotational constant of  $l-Si^{12}C_3H^-$  and  $l-Si^{12}C_3D^-$ , the dipole moment, excitation energies to the lowest electronic states and electron affinities have been estimated.