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Marilyn Daily* (Marilyn.Daily@aei.mpg.de), Albert Einstein Institute, Am Mühlenberg 1, 14476 Golm, Germany, and **Alice Fialowski** (fialowsk@cs.elte.hu) and **Michael Penkava** (penkavmr@uwec.edu). *Moduli spaces of L_∞ structures.*

Given a \mathbb{Z} -graded vector space W , there is a 1-1 correspondence between the degree 1 codifferentials on the symmetric coalgebra $S(W)$ and the L_∞ structures (also known as ‘strongly homotopy Lie algebras’) on the suspension of W . Two codifferentials d, d' on $S(W)$ are equivalent if there is a degree 0 automorphism of $S(W)$ such that $gd' = dg$, and the equivalence classes under this action form the moduli space of L_∞ structures on W . I will discuss the moduli spaces which can occur when the \mathbb{Z} -graded vector space W is 3-dimensional, describe how the codifferentials in the moduli spaces can deform into other nonequivalent codifferentials, and compare the \mathbb{Z} -graded moduli spaces to the corresponding \mathbb{Z}_2 -graded moduli spaces. (Received July 11, 2006)