1016-17-139 **Brian Hartwig** (hartwig@math.wisc.edu), Math Department, University of Wisconsin, 480 Lincoln Drive, Madison, WI 53706, and **Paul M Terwilliger*** (terwilli@math.wisc.edu), Math Department, University of Wisconsin, 480 Lincoln Drive, Madison, WI 53706. *The Tetrahedron algebra, the Onsager algebra, and the $\mathfrak{sl}_2$ loop algebra.*

Let K denote a field with characteristic 0 and let T denote an indeterminate. We give a presentation for the three-point loop algebra $\mathfrak{sl}_2 \otimes K[T, T^{-1}, (T-1)^{-1}]$ via generators and relations. This presentation displays S_4-symmetry. Using this presentation we obtain a decomposition of the above loop algebra into a direct sum of three subalgebras, each of which is isomorphic to the Onsager algebra. (Received February 08, 2006)