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Jun Yan* (junyan65@stanford.edu), 52 Dudley Ln, Apt 102B, Stanford, CA 94305. *An Algebra Model for the Higher Order Sum Rules.*

We introduce an algebra model to study higher order sum rules for orthogonal polynomials on the unit circle. We build the relation between the algebra model and sum rules, and prove an equivalent expression on the algebra side for the sum rules, involving a Hall-Littlewood type polynomial. By this expression, we recover an earlier result by Golinskii and Zlatős, and prove a new case - half of the Lukic conjecture in the case of a single critical point with arbitrary order. (Received January 27, 2018)