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**Georgia Benkart\*** (benkart@math.wisc.edu). *Markov Chains from Weyl Modules for  $U_q(\mathfrak{sl}_2)$ .*

We describe two Markov chains obtained from tensor products of Weyl modules for the quantum group  $U_q(\mathfrak{sl}_2)$ , when  $q^2$  is a primitive  $\ell$ th root of unity for  $\ell$  an odd integer  $\geq 3$ . The first, which was studied in our joint work with P. Diaconis, M. Liebeck, and P. Tiep, has a transition matrix determined by the composition multiplicities of the Weyl modules when a Weyl module is tensored with the two-dimensional Weyl module  $\Delta_q(1)$ . The second, which is joint with S. Lopes, is based on the truncated Clebsch-Gordan formula of Iohara, Lehrer, and Zhang for tensoring with  $\Delta_q(1)$ . In both cases, the eigenvalues and eigenvectors of the transition matrix have connections with the Coxeter number and exponents of the root system of type  $A_{\ell-1}$ . Iohara, Lehrer, and Zhang have shown that the algebra of transformations commuting with the  $U_q(\mathfrak{sl}_2)$ -action on the  $n$ th truncated tensor power of  $\Delta_q(1)$  is the Jones algebra  $Q_n(\ell)$ . As a result, the multiplicities of the Weyl modules in the truncated tensor powers can also be viewed as dimensions of simple modules for Jones algebras. When  $\ell = 5$ , these multiplicities are given by Fibonacci numbers. (Received January 15, 2021)