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Naihuan Jing* (jing@math.ncsu.edu), Department of Mathematics, N. C. State University,
Raleigh, NC 27695-8205. *Product-sum identities and affine Lie algebras.*

In the early eighties Lepowsky and Wilson found a Lie theoretical interpretation of the Rogers-Ramanujan identities using higher level vertex representations of the affine Lie algebra $\hat{sl}(2)$. Their work and earlier works of Macdonald, Kac and Feingold-Lepowsky have revealed various interesting relationships between representations of affine Lie algebras and combinatorial identities. In this work we will study how certain admissible representations of the affine Lie algebra $\hat{sl}(2)$ can provide new interpretation/proof of product-sum identities such as quintuple product identities. This is joint work with L.M. Xia. (Received January 02, 2007)