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Combinatorial bases of principal subspaces for quantum affine algebra $U_q(A_n^{(1)})$

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We consider principal subspace $W(\Lambda)$ of integrable highest weight module $L(\Lambda)$ for quantum affine algebra $U_q(\widehat{\mathfrak{sl}}_{n+1})$. We introduce quantum analogues of the quasi-particles associated with the principal subspaces for $\widehat{\mathfrak{sl}}_{n+1}$ and derive certain relations among them. By using these relations we find, for certain highest weights Λ, combinatorial bases of principal subspace $W(\Lambda)$ in terms of monomials of quantum quasi-particles.

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