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Kailash C Misra* (misra@ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695-8205. *Imaginary Verma Modules for $U_q(\widehat{\mathfrak{sl}(2)})$ and Crystal-like bases.*

Consider the affine Lie algebra $\widehat{\mathfrak{sl}(2)}$ with simple roots $\{\alpha_0, \alpha_1\}$. Let $S = \{\alpha_1 + k\delta \mid k \in \mathbb{Z}\} \cup \{l\delta \mid l \in \mathbb{Z}_{>0}\}$ where $\delta = \alpha_0 + \alpha_1$. Then $S \cup -S$ is a closed partition of the root system Δ which is not Weyl group conjugate to the standard partition. The Verma module $M(\lambda)$ with highest weight λ induced by the corresponding nonstandard Borel subalgebra is called the imaginary Verma module for $\widehat{\mathfrak{sl}(2)}$. We consider the imaginary Verma modules for the quantum affine algebra $U_q(\widehat{\mathfrak{sl}(2)})$ and define a crystal-like base which we call an imaginary crystal basis using the Kashiwara algebra \mathcal{K}_q we constructed earlier. In particular, we prove the existence of imaginary crystal bases for a suitable category of reduced imaginary Verma modules for $U_q(\widehat{\mathfrak{sl}(2)})$. This is joint work with Ben Cox and Slava Futorny. (Received January 06, 2017)