1148-17-308 **Kailash C. Misra***, 2311 Stinson Dr., North Carolina State University, Raleigh, NC 27695-8205.
$D_5^{(1)}$- Geometric Crystal and its ultra-discretization].

Let $\mathfrak{g}$ be an affine Lie algebra with index set $I = \{0, 1, 2, \cdots, n\}$ and $\mathfrak{g}^L$ be its Langlands dual. It is conjectured that for each Dynkin node $i \in I \setminus \{0\}$ the affine Lie algebra $\mathfrak{g}$ has a positive geometric crystal whose ultra-discretization is isomorphic to the limit of certain coherent family of perfect crystals for $\mathfrak{g}^L$. In this paper we construct a positive geometric crystal $\mathcal{V}(D_5^{(1)})$ in the level zero fundamental spin $D_5^{(1)}$- module $W(\varpi_5)$. Then we define explicit 0-action on the level ℓ known $D_5^{(1)}$- perfect crystal $B^{5,l}$ and show that $\{B^{5,l}\}_{l\geq 1}$ is a coherent family of perfect crystals with limit $B^{5,\infty}$. Finally we show that the ultra-discretization of $\mathcal{V}(D_5^{(1)})$ is isomorphic to $B^{5,\infty}$ as crystals which proves the conjecture in this case. This is joint work with M. Igarashi and S. Pongprasert. (Received February 05, 2019)