
Categorifying the tensor product of the Kirillov-Reshetikhin crystal $B_{1,1}$ and a fundamental crystal

Henry Kvinge^{*1} and Monica Vazirani^{*1}

¹Department of Mathematics [Davis] – University of California, One Shields Av., Davis, CA 95616, United States

Abstract

We use Khovanov-Lauda-Rouquier (KLR) algebras to categorify a crystal isomorphism between a fundamental crystal and the tensor product of a Kirillov-Reshetikhin crystal and another fundamental crystal, all in affine type. The nodes of the Kirillov-Reshetikhin crystal correspond to a family of "trivial" modules. The nodes of the fundamental crystal correspond to simple modules of the corresponding cyclotomic KLR algebra. The crystal operators correspond to socle of restriction and behave compatibly with the rule for tensor product of crystal graphs.

^{*}Speaker