

(Affine) type A crystals and particle configurations

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Crystals of (affine) type A corresponding to the symmetric resp. alternating representations can be translated to bosonic resp. fermionic particle configurations consisting of a finite number of particles arranged on a line segment or a circle. On these configurations, the (affine) local plactic algebra acts. This action is not faithful, and we describe the additional relations and the resulting algebras. In the fermionic case, the (affine) nilTemperley-Lieb algebra appears, in the bosonic case we get interesting new relations.