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Geometry of quiver Grassmannians of Dynkin type with applications to cluster algebras.

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Summary: The paper includes a new proof of the fact that quiver Grassmannians associated with rigid representations of Dynkin quivers do not have cohomology in odd degrees. Moreover, it is shown that they do not have torsion in homology. A new proof of the Caldero-Chapoton formula is provided. As a consequence a new proof of the positivity of cluster monomials in the acyclic clusters associated with Dynkin quivers is obtained. The methods used here are based on joint works with M. Reineke and E. Feigin [Algebra Number Theory 6, No. 1, 165–194 (2012; Zbl 1282.14083); J. Algebr. Comb. 38, No. 1, 159–189 (2013; Zbl 1312.14115); Adv. Math. 245, 182–207 (2013; Zbl 1336.16015)].

For the entire collection see [Zbl 1357.14004].

MSC:

16G70 Auslander-Reiten sequences (almost split sequences) and Auslander-Reiten quivers

14N05 Projective techniques in algebraic geometry

13F60 Cluster algebras

Keywords:
quiver Grassmannians; Dynkin quivers; cluster algebras

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