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*Cluster algebra structures on quantum double Bruhat cells*

Cluster algebras were defined by Fomin and Zelevinsky for the purposes of the axiomatic study of canonical bases and total positivity. An important open problem for these applications was the Berenstein-Zelevinsky conjecture that the quantized coordinate rings of all double Bruhat cells in complex simple Lie groups admit upper quantum cluster algebra structures. We will give a prove of this conjecture, which also shows that each of the upper quantum cluster algebras coincides with the corresponding quantum cluster algebra. This is a joint work with Ken Goodearl, UC Santa Barbara.