Automorphisms of GKM graphs and regular semisimple Hessenberg varieties

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Abstract: A regular semisimple Hessenberg variety $\mathrm{Hess}(S,h)$ is a smooth subvariety of the full flag manifold associated with a regular semisimple matrix S of order n and the function h from $\{1,...,n\}$ to itself with a certain condition. In this talk, we show that if $\mathrm{Hess}(S,h)$ is connected and not the entire full flag manifold then the reductive part of the identity component of $\mathrm{Aut}(\mathrm{Hess}(S,h))$ is the algebraic torus with dimension $n-1$. We also describe that the group of components of $\mathrm{Aut}(\mathrm{Hess}(S,h))$ is isomorphic to a subgroup of the automorphism group of the GKM graph of $\mathrm{Hess}(S,h)$. This is a joint work with Donghoon Jang, Mikiya Masuda, Takashi Sato and Haozhi Zeng.