On Fano and weak Fano regular semisimple Hessenberg varieties

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Regular Hessenberg varieties are a family of subvarieties of the full flag variety $G/B$. This family contains the full flag variety, Peterson variety and permutahedral variety. In this talk, we discuss the Fano and weak Fano regular semisimple Hessenberg varieties in type $A$. We give a sufficient and necessary condition, in terms of Hessenberg functions, for a regular semisimple Hessenberg variety to be Fano and weak Fano. This is joint work with Hiraku Abe and Naoki Fujita.