Rational cubic fourfolds containting a plane with nontrivial Clifford invariant

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In this talk I will showcase a general class of smooth rational cubic fourfolds X containing a plane whose associated quadric surface bundle does not have a rational section. Equivalently, the Brauer class B of the even Clifford algebra over the discriminant cover (a $K3$ surface S of degree 2) associated to the quadric bundle, is nontrivial. These fourfolds provide nontrivial examples verifying Kuznetsov's conjecture on the rationality of cubic fourfolds containing a plane. Indeed, using homological projective duality for grassmannians, one obtains another $K3$ surface S' of degree 14 and a nontrivial twisted derived equivalence $A_X = D^b(S; B) = D^b(S')$, where A_X is Kuznetsov's residual category associated to the cubic hypersurface X.