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Stability conditions on Fano threefolds of Picard number 1. (English)

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Summary: We prove the conjectural Bogomolov-Gieseker type inequality for tilt-stable objects on each Fano threefold \( X \) of Picard number 1. In view of the previous works \([A. Bayer et al., J. Algebr. Geom. 23, No. 4, 693–710 (2014; Zbl 1310.14026)], [A. Bayer et al., Invent. Math. 206, No. 3, 869–933 (2016; Zbl 1360.14057)]\) and \([A. Bayer et al., J. Algebr. Geom. 23, No. 1, 117–163 (2014; Zbl 1306.14005)]\) on Bridgeland stability conditions, this induces an open subset of geometric stability conditions on \( D^b(X) \).

We also get a new stronger bound for Chern characters of slope semistable sheaves on \( X \).

MSC:
- 14F05 Sheaves, derived categories of sheaves, etc. (MSC2010)
- 14J45 Fano varieties

Keywords:
- stability condition
- Fano threefolds
- Bogomolov-Gieseker type inequality

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