
The infinite symmetric group $S_\omega$ is a topological group with respect to the product topology of $\mathbb{N}^\omega$. The authors show that the affine groups $AGL_n\mathbb{Q}$ with $2 \leq n \leq \omega$ are maximal among the closed subgroups of $S_\omega$. Their proof uses the classification of infinite 3-transitive Jordan groups due to S. A. Adeleke and D. Macpherson [Proc. Lond. Math. Soc. (3) 72, No. 1, 63–123 (1996; Zbl 0839.20002)]. A similar maximality result is proved for the projective groups $PGL_n\mathbb{Q}$ with $3 \leq n \leq \omega$. As the authors point out, this holds more generally for projective groups over arbitrary infinite fields by F. Bogomolov and M. Rovinsky [Cent. Eur. J. Math. 11, No. 1, 17–26 (2013; Zbl 1277.20003)].

Reviewer: Theo Grundhöfer (Würzburg)

MSC:
- 20B27 Infinite automorphism groups
- 03C40 Interpolation, preservation, definability
- 20E28 Maximal subgroups
- 51E15 Finite affine and projective planes (geometric aspects)
- 51E10 Steiner systems in finite geometry

Keywords:
- infinite symmetric group; affine group; projective group

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References:


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