Universal equivalence of symplectic groups

Alexey Lazarev

14 February 2022

Abstract

Two algebraical systems $\mathfrak{A}$ and $\mathfrak{B}$ of the signature Σ are called universally equivalent *if for every universal formula φ of the signature Σ the following condition holds: $\mathfrak{A} \models \varphi \Longleftrightarrow \mathfrak{B} \models \varphi$.*

We prove the criteria of universal equivalence of symplectic linear groups over fields: two symplectic linear groups $\mathrm{Sp}_{2n}(K)$ and $\mathrm{Sp}_{2m}(M)$, where $n, m \geqslant 1$, K, M are infinite fields of characteristics not equal to 2 are universally equivalent if and only if $n = m$ and the fields K and M are universally equivalent.