Summary: Let \( H(n, q^2) \) be a non-degenerate Hermitian variety of \( PG(n, q^2) \), \( n \geq 2 \). Let \( NU(n + 1, q^2) \) be the graph whose vertices are the points of \( PG(n, q^2) \setminus H(n, q^2) \) and two vertices \( u, v \) are adjacent if the line joining \( u \) and \( v \) is tangent to \( H(n, q^2) \). Then \( NU(n + 1, q^2) \) is a strongly regular graph. In this paper we show that the automorphism group of the graph \( NU(3, q^2) \) is isomorphic either to \( PGU(3, q) \), the automorphism group of the projective unitary group \( PGU(3, q) \), or to \( S_3 \wr S_4 \), according as \( q \neq 2 \), or \( q = 2 \).

MSC:
- 20-XX Group theory and generalizations
- 05-XX Combinatorics

References:

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