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Coadjoint Orbits for A_{n-1}^+, B_n^+, and D_n^+

A complete description of the coadjoint orbits for A_{n-1}^+, the nilpotent Lie algebra of $n \times n$ strictly upper triangular matrices, has not yet been obtained, though there has been steady progress on it ever since the orbit method was devised. We apply methods developed by André to find defining equations for the elementary coadjoint orbits for the maximal nilpotent Lie subalgebras of the orthogonal Lie algebras, and we also determine all the possible dimensions of coadjoint orbits in the case of A_{n-1}^+.

Keywords: Coadjoint orbit, nilpotent Lie algebra.

MSC: 17B30,17B35