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Autore	Gruninger Matthias
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Nota di contenuto	Cover -- Title page -- Chapter 1. Introduction -- Chapter 2. Preliminaries -- 2.1. Moufang sets -- 2.2. Rank one groups -- 2.3. Some ring theory -- 2.4. Jordan algebras -- 2.5. Envelopes of special Jordan algebras -- 2.6. Quadratic spaces and Clifford Jordan algebras -- 2.7. Involutionary sets and pseudo-quadratic forms -- 2.8. Cubic norm structures -- 2.9. Freudenthal triple systems -- 2.10. Structurable algebras -- 2.11. The Clifford algebra of a Freudenthal triple system -- Chapter 3. Cubic Action -- Chapter 4. Examples of cubic modules -- 4.1. Pseudo-quadratic spaces -- 4.2. Adjoint action -- 4.3. The Tits-Kantor-Koecher module -- 4.4. Quadratic pairs without commuting root subgroups -- 4.5. Elementary groups of Freudenthal triple systems -- 4.6. Connection with Moufang Quadrangles -- 4.7. Suzuki and Ree groups -- Chapter 5. The structure of a cubic module --

Chapter 6. Construction of irreducible submodules -- Chapter 7. Cubic rank one groups with trivial quadratic kernel -- Chapter 8. A characterisation of the adjoint module of $\text{PSL}(3)$ -- Chapter 9. Cubic rank one groups with non-trivial quadratic kernel -- Chapter 10. Cubic rank one groups with Hermitian quadratic kernel -- Chapter 11. Cubic rank one groups with commutative quadratic kernel -- Bibliography -- Back Cover.

Sommario/riassunto

"We consider a rank one group $G = A, B$ acting cubically on a module V , this means $[V, A, A, A] = 0$ but $[V, G, G, G] \neq 0$. We have to distinguish whether the group $A_0 := C_A([V, A]) = C_A(V/C_V(A))$ is trivial or not. We show that if A_0 is trivial, G is a rank one group associated to a quadratic Jordan division algebra. If A_0 is not trivial (which is always the case if A is not abelian), then A_0 defines a subgroup G_0 of G acting quadratically on V . We will call G_0 the quadratic kernel of G . By a result of Timmesfeld we have $G_0 = \text{SL}_2(J, R)$ for a ring R and a special quadratic Jordan division algebra J over R . We show that J is either a Jordan algebra contained in a commutative field or a Hermitian Jordan algebra. In the second case G is the special unitary group of a pseudo-quadratic form of Witt index 1, in the first case G is the rank one group for a Freudenthal triple system. These results imply that if (V, G) is a quadratic pair such that no two distinct root groups commute and $\text{char} V = 2, 3$, then G is a unitary group or an exceptional algebraic group"--
