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# ORBIT STRUCTURE OF THE EXCEPTIONAL HERMITIAN SYMMETRIC SPACES. II

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This note describes results on the orbit structure of the exceptional hermitian symmetric space $E_6/SO(10) \cdot SO(2)$ analogous to those obtained for the space $E_7/E_6 \cdot SO(2)$ in [2].

1. **J. Tits' construction of the complex Lie algebra $\mathfrak{E}_6$.** Let $A$ be the algebra $\mathbf{C} \oplus \mathbf{C}$ with componentwise multiplication, and define the trace of an element of $A$ to be the sum of its two components. As in [2], let $\mathcal{J}$ be the 27-dimensional Jordan algebra of hermitian $3 \times 3$ matrices over the complex Cayley numbers. Write $A_0$ and $\mathcal{J}_0$ for the subsets of $A$ and $\mathcal{J}$ consisting of elements with zero trace. Also let $\operatorname{Der}(\mathcal{J})$ be the Lie algebra of derivations of $\mathcal{J}$ and let $\{L(A)\}(B) = A \circ B$ denote multiplication in $\mathcal{J}$. Now define an anticommutative multiplication $[\ ,\ ]$ on the complex vector space $\mathfrak{g} = (A_0 \otimes \mathcal{J}_0) + \operatorname{Der}(\mathcal{J})$ by means of the following rules:

(a) $[D, D']$ is the usual commutator for $D, D' \in \operatorname{Der}(\mathcal{J})$.

(b) $[D, a \otimes A] = a \otimes D(A)$ for $a \in A_0$, $A \in \mathcal{J}_0$, and $D \in \operatorname{Der}(\mathcal{J})$.

(c) $[a \otimes A, b \otimes B] = \frac{1}{2}\operatorname{Tr}(ab)[L(A), L(B)]$ for $a, b \in A_0$ and $A, B \in \mathcal{J}_0$.

Then $\mathfrak{g}$ is the complex Lie algebra $\mathfrak{E}_6$.

If we put $e = (1, -1) \in A_0$, then $A_0 = \mathbf{C} \cdot e$, so $\mathfrak{g} = (\mathbf{C} \cdot e \otimes \mathcal{J}_0) + \operatorname{Der}(\mathcal{J})$, and the multiplication in $\mathfrak{g}$ is determined by the single rule

$$[e \otimes A + D, e \otimes A' + D'] = e \otimes \{D(A') - D'(A)\} + [L(A), L(A')] + [D, D']$$

for $A, A' \in \mathcal{J}_0$ and $D, D' \in \operatorname{Der}(\mathcal{J})$.

Let $A'$ be the set of elements in $A$ of the form $(w, w^*)$, where $w^*$

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