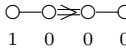
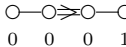
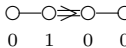
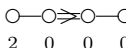
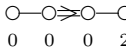
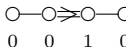
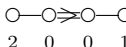
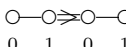


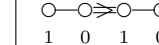
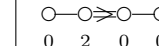
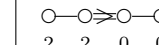
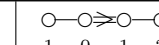
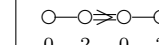
PREHOMOGENEOUS SPACES ASSOCIATED WITH NILPOTENT ORBITS IN $F_4(\mathbb{C})$

STEVEN GLENN JACKSON AND ALFRED G. NOËL

Nilpotent orbits in type F_4					
Bala-Carter label	Diagram	i	$\dim \mathfrak{g}_i$	Highest weights of $\mathfrak{g}_i$	
A_1		1	14	$(-1, 1, 0, 0)$	
		2	1	$(1, 0, 0, 0)$	
$\tilde{A}_1$		1	8	$(0, 0, 1, -1)$	
		2	7	$(1, 0, 0, 0)$	
$A_1 + \tilde{A}_1$		1	12	$(1, -1, 0, 2)$	
		2	6	$(0, -1, 2, 0)$	
		3	2	$(1, 0, 0, 0)$	
A_2		2	14	$(-1, 1, 0, 0)$	
		4	1	$(1, 0, 0, 0)$	
$\tilde{A}_2$		2	8	$(0, 0, 1, -1)$	
		4	7	$(1, 0, 0, 0)$	
$A_2 + \tilde{A}_1$		1	6	$(1, 0, -1, 1)$	
		2	9	$(0, 1, -2, 2)$	
		3	2	$(0, 0, 0, 1)$	
		4	3	$(1, 0, 0, 0)$	
B_2		1	4	$(-1, 0, 1, 0)$	
		2	6	$(0, 1, 0, -2)$ $(-1, 0, 0, 2)$	
		3	4	$(0, 0, 1, -1)$	
		4	5	$(-1, 1, 0, 0)$	
		6	1	$(1, 0, 0, 0)$	
$\tilde{A}_2 + A_1$		1	8	$(0, -1, 1, 1)$ $(1, -1, 2, -2)$	
		2	5	$(0, 1, 0, -2)$ $(1, -1, 1, 0)$	
		3	4	$(1, -1, 0, 2)$ $(0, 0, 1, -1)$	
		4	3	$(0, -1, 2, 0)$	
<i>(continued on next page)</i>					

2000 *Mathematics Subject Classification.* 17B05;17B10;17B20;22E30.

Key words and phrases. Lie group, nilpotent orbit, prehomogeneous space.

Nilpotent orbits in type F_4 (continued)				
Bala-Carter label	Diagram	i	$\dim \mathfrak{g}_i$	Highest weights of $\mathfrak{g}_i$
		5	2	$(1, 0, 0, 0)$
$C_3(a_1)$		1	6	$(1, 1, -2, 0)$ $(-1, 1, -1, 1)$
		2	5	$(1, 0, -1, 1)$ $(-1, 0, 0, 2)$
		3	6	$(0, 1, -2, 2)$
		4	2	$(0, 0, 0, 1)$
		5	2	$(-1, 1, 0, 0)$
		6	1	$(1, 0, 0, 0)$
$F_4(a_3)$		2	12	$(1, -1, 0, 2)$
		4	6	$(0, -1, 2, 0)$
		6	2	$(1, 0, 0, 0)$
B_3		2	7	$(2, -1, 0, 0)$ $(-1, 0, 0, 2)$
		4	6	$(1, -1, 0, 2)$
		6	6	$(0, -1, 2, 0)$
		8	1	$(-1, 1, 0, 0)$
		10	1	$(1, 0, 0, 0)$
C_3		1	4	$(1, 1, -2, 0)$ $(-1, 1, 0, -1)$
		2	3	$(0, 0, -1, 2)$ $(1, 0, 0, -1)$ $(-1, 0, 2, -2)$
		3	4	$(-1, 1, -1, 1)$ $(0, 1, 0, -2)$
		4	2	$(1, 0, -1, 1)$ $(-1, 0, 1, 0)$
		5	2	$(0, 1, -1, 0)$
		6	2	$(-1, 0, 0, 2)$ $(0, 0, 1, -1)$
		7	2	$(0, 1, -2, 2)$
		8	1	$(0, 0, 0, 1)$
		9	2	$(-1, 1, 0, 0)$
		10	1	$(1, 0, 0, 0)$
$F_4(a_2)$		2	8	$(0, -1, 1, 1)$ $(1, -1, 2, -2)$
		4	5	$(0, 1, 0, -2)$ $(1, -1, 1, 0)$
		6	4	$(1, -1, 0, 2)$ $(0, 0, 1, -1)$
		8	3	$(0, -1, 2, 0)$
		10	2	$(1, 0, 0, 0)$
<i>(continued on next page)</i>				

Nilpotent orbits in type F_4 (continued)				
Bala-Carter label	Diagram	i	$\dim \mathfrak{g}_i$	Highest weights of $\mathfrak{g}_i$
$F_4(a_1)$		2	6	$(2, -1, 0, 0)$ $(0, -1, 1, 1)$ $(-1, 0, 2, -2)$
		4	5	$(1, -1, 2, -2)$ $(-1, 0, 1, 0)$
		6	4	$(0, 1, 0, -2)$ $(1, -1, 1, 0)$ $(-1, 0, 0, 2)$
		8	3	$(1, -1, 0, 2)$ $(0, 0, 1, -1)$
		10	3	$(0, -1, 2, 0)$
		12	1	$(-1, 1, 0, 0)$
		14	1	$(1, 0, 0, 0)$
F_4		2	4	$(2, -1, 0, 0)$ $(-1, 2, -2, 0)$ $(0, -1, 2, -1)$ $(0, 0, -1, 2)$
		4	3	$(1, 1, -2, 0)$ $(-1, 1, 0, -1)$ $(0, -1, 1, 1)$
		6	3	$(1, 0, 0, -1)$ $(-1, 0, 2, -2)$ $(-1, 1, -1, 1)$
		8	3	$(1, -1, 2, -2)$ $(1, 0, -1, 1)$ $(-1, 0, 1, 0)$
		10	3	$(0, 1, 0, -2)$ $(1, -1, 1, 0)$ $(-1, 0, 0, 2)$
		12	2	$(0, 1, -1, 0)$ $(1, -1, 0, 2)$
		14	2	$(0, 0, 1, -1)$ $(0, 1, -2, 2)$
		16	1	$(0, 0, 0, 1)$
		18	1	$(0, -1, 2, 0)$
		20	1	$(-1, 1, 0, 0)$
		22	1	$(1, 0, 0, 0)$

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