

PREHOMOGENEOUS SPACES ASSOCIATED WITH NILPOTENT ORBITS IN TYPE EIX

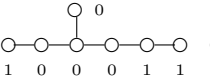
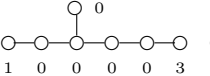
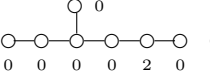
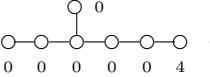
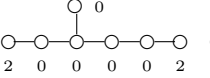
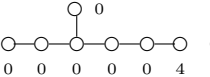
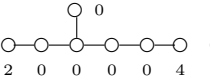
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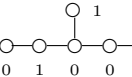
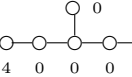
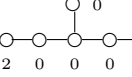
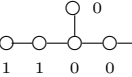
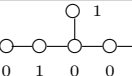
Nilpotent orbits in type EIX				
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$
1.		1	28	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		2	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
2.		1	32	$(-1, 1, 0, 0, 0, 0, 0, 1)$
		2	12	$(0, 0, 0, 0, 0, 0, 1, 1)$
3.		1	32	$(0, 0, 0, 0, 1, -1, 0, 1)$
		2	4	$(0, 0, 0, 0, 0, 0, 1, 1)$
4.		1	27	$(1, 0, 0, 0, 0, 0, -1, 1)$
		2	27	$(0, 0, 0, 0, 0, 1, -1, 1)$
		3	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
5.		1	27	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		2	11	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		3	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
6.		2	56	$(0, 0, 0, 0, 0, 0, 1, 1)$
7.		2	28	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		4	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
8.		2	24	$(0, 0, 0, 0, 0, 0, 1, 1)$
9.		1	22	$(-1, -1, 0, 1, 0, 0, 0, 1)$ $(0, -1, 1, 0, 0, 0, 0, -1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$
(continued on next page)				

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

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

Nilpotent orbits in type EIX (continued)				
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, -1, 1, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 0, 1, -1)$ $(0, 0, 0, 0, 0, 0, 0, 1, 1)$
10.		1	24	$(-1, 0, 1, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		2	12	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 0, 1, -1)$
		3	8	$(0, 0, 0, 0, 1, -1, 0, 1)$
		4	2	$(0, 0, 0, 0, 0, 0, 0, 1, 1)$
11.		1	24	$(1, 0, 0, -1, 1, 0, 0, 1)$
		2	12	$(0, 1, 1, -1, 0, 0, 0, 1)$
		3	8	$(0, 0, 0, 0, 0, 0, 1, 1)$
12.		1	16	$(-1, 0, 1, 0, 0, 0, -1, 1)$
		2	3	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(1, 0, 0, 0, 0, 0, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		3	16	$(-1, 1, 0, 0, 0, 0, 0, 1)$
		4	10	$(0, 0, 0, 0, 0, 1, -1, 1)$
		6	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
13.		1	16	$(0, 0, 0, 0, 1, -1, 0, -1)$
		2	11	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		3	16	$(0, 0, 0, 0, 1, -1, 0, 1)$
		4	2	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		6	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
14.		2	32	$(0, 0, 0, 0, 1, -1, 0, 1)$
		4	4	$(0, 0, 0, 0, 0, 0, 1, 1)$
15.		1	18	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 0, 1, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$ $(1, 0, 0, 0, 0, -1, 1, -1)$
		2	17	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		3	9	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		4	2	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
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Nilpotent orbits in type EIX (continued)				
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$
		5	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
16.		1	17	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(-1, 0, 1, 0, 0, 0, -1, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		2	10	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 0, 1, 0, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		3	10	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		4	8	$(0, 0, 0, 0, 1, -1, 0, 1)$
		5	1	$(0, 0, 0, 0, 0, 1, -1, 1)$
		6	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
17.		1	17	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$
		2	26	$(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		3	10	$(0, 0, 0, 0, 0, 1, -1, 1)$
		5	1	$(0, 0, 0, 0, 0, 0, 1, -1)$
		6	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
18.		2	22	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		4	16	$(0, 0, 0, 0, 1, -1, 0, 1)$
		6	2	$(0, 0, 0, 0, 0, 0, 1, 1)$
19.		2	54	$(0, 0, 0, 0, 0, 1, -1, 1)$
		6	2	$(0, 0, 0, 0, 0, 0, 1, 1)$
20.		2	27	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		4	11	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		6	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
21.		2	28	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		6	27	$(0, 0, 0, 0, 0, 1, -1, 1)$
		10	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
22.		2	12	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(1, 0, 0, 0, 0, 0, -1, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		4	16	$(-1, 1, 0, 0, 0, 0, 0, 1)$
		6	11	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		10	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
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Nilpotent orbits in type EIX (continued)				
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$
23.		1	16	$(0, 0, -1, 1, 0, 0, -1, 1)$ $(0, -1, 0, 0, 0, 1, 0, 1)$ $(1, -1, -1, 1, 0, 0, 0, -1)$
		2	11	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(0, 0, -1, 0, 1, 0, 0, 1)$ $(0, -1, 1, 0, 0, 0, 0, -1)$ $(1, 1, -1, 0, 0, 0, 0, -1)$
		3	12	$(1, -1, -1, 1, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		4	4	$(1, 1, -1, 0, 0, 0, 0, 1)$ $(0, -1, 1, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		5	4	$(0, 0, 0, 0, 0, 1, -1, 1)$
		6	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
24.		2	44	$(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		6	12	$(0, 0, 0, 0, 0, 0, 1, 1)$
25.		2	20	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$
		4	16	$(0, 0, 0, 0, 1, -1, 0, 1)$
		6	4	$(0, 0, 0, 0, 0, 0, 1, 1)$
26.		1	13	$(-1, 0, 1, 0, 0, 0, -1, 1)$ $(0, 0, -1, 1, 0, -1, 1, 1)$ $(0, 0, -1, 0, 1, 0, 0, -1)$ $(-1, 0, 1, 0, 0, -1, 1, -1)$ $(1, 0, 0, 0, 0, 0, -1, -1)$
		2	11	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 0, 1, 0, 0, -1, 1, 1)$ $(0, 0, -1, 0, 1, 0, 0, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$ $(1, 0, 0, 0, 0, -1, 1, -1)$
		3	9	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(1, 1, -1, 0, 0, 0, 0, -1)$
		4	8	$(1, 1, -1, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		5	5	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		6	2	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		7	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
27.		1	12	$(0, 0, -1, 1, 0, 0, -1, 1)$ $(1, -1, -1, 1, 0, 0, 0, -1)$
		2	7	$(1, 0, -1, 0, 0, 0, 1, 1)$ $(1, 0, 0, 0, 0, 0, -1, 1)$ $(0, -1, 1, 0, 0, 0, 0, -1)$ $(1, 1, -1, 0, 0, 0, 0, -1)$
(continued on next page)				

Nilpotent orbits in type EIX (continued)				
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$
		3	8	$(0, -1, 0, 0, 0, 1, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		4	6	$(0, 0, -1, 0, 1, 0, 0, 1)$
		5	8	$(1, -1, -1, 1, 0, 0, 0, 1)$
		6	4	$(1, 1, -1, 0, 0, 0, 0, 1)$ $(0, -1, 1, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		7	4	$(0, 0, 0, 0, 0, 1, -1, 1)$
		10	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
28.		2	24	$(1, 0, 0, -1, 1, 0, 0, 1)$
		4	12	$(0, 1, 1, -1, 0, 0, 0, 1)$
		6	8	$(0, 0, 0, 0, 0, 0, 1, 1)$
29.		1	9	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(-1, 0, 1, 0, 0, 0, -1, 1)$
		2	17	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 0, 1, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$
		3	9	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		5	8	$(-1, 1, 0, 0, 0, 0, 0, 1)$
		6	9	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		7	1	$(0, 0, 0, 0, 0, 0, 1, -1)$
		9	1	$(0, 0, 0, 0, 0, 1, -1, 1)$
		10	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
30.		2	18	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 0, 1, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$ $(1, 0, 0, 0, 0, -1, 1, -1)$
		4	17	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		6	9	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		8	2	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		10	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
31.		2	36	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		6	18	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		10	2	$(0, 0, 0, 0, 0, 0, 1, 1)$
32.		2	11	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$ $(1, 0, 0, 0, 0, -1, 1, -1)$
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Nilpotent orbits in type EIX (continued)				
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{p}_{\mathbb{C}}$
		4	16	$(-1, 0, 1, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		6	10	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		8	8	$(0, 0, 0, 0, 1, -1, 0, 1)$
		10	2	$(0, 0, 0, 0, 0, 1, -1, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		14	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
33.		2	27	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(-1, 0, 1, 0, 0, 0, -1, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		6	18	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		10	10	$(0, 0, 0, 0, 0, 1, -1, 1)$
		14	1	$(0, 0, 0, 0, 0, 0, 1, 1)$
34.		2	16	$(0, 1, 0, -1, 0, 1, 0, 1)$ $(1, 0, 0, 0, 0, -1, 1, 1)$
		4	12	$(1, 0, 0, -1, 1, 0, 0, 1)$
		6	12	$(0, 1, 1, -1, 0, 0, 0, 1)$
		8	4	$(0, 0, 0, 0, 1, -1, 0, 1)$
		10	4	$(0, 0, 0, 0, 0, 0, 1, 1)$
35.		2	26	$(-1, 0, 1, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$ $(1, 0, 0, 0, 0, -1, 1, -1)$
		6	18	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		10	10	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		14	2	$(0, 0, 0, 0, 0, 0, 1, 1)$
36.		2	18	$(-1, 0, 0, 0, 0, 0, 1, 1)$ $(-1, 0, 1, 0, 0, 0, -1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, -1)$ $(1, 0, 0, 0, 0, -1, 1, -1)$
		6	17	$(1, 0, 0, 0, 0, 0, -1, 1)$ $(-1, 0, 1, 0, 0, -1, 1, 1)$ $(0, 0, 0, 0, 1, -1, 0, -1)$
		10	10	$(1, 0, 0, 0, 0, -1, 1, 1)$ $(-1, 1, 0, 0, 0, 0, 0, 1)$ $(0, 0, 0, 0, 0, 1, -1, -1)$
		14	9	$(0, 0, 0, 0, 1, -1, 0, 1)$ $(0, 0, 0, 0, 0, 0, 1, -1)$
		18	1	$(0, 0, 0, 0, 0, 1, -1, 1)$
		22	1	$(0, 0, 0, 0, 0, 0, 1, 1)$

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