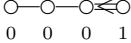
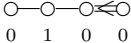
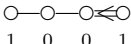
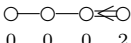
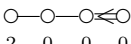
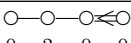
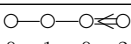
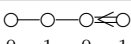
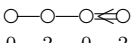
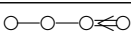


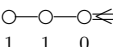
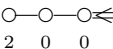
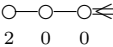
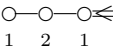
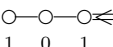
PREHOMOGENEOUS SPACES ASSOCIATED WITH NILPOTENT ORBITS IN TYPE EI

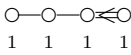
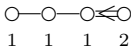
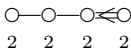
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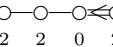
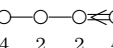
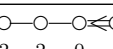
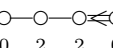
Nilpotent orbits in type EI					
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Prehomogeneous space
1.		1	10	$(2, 0, 0, 0)$	$S^2(\mathrm{SL}_4)$
2.		1	8	$(1, -1, 1, 0)$	$\mathrm{SL}_2 \otimes \mathrm{Sp}_4$
		2	3	$(2, 0, 0, 0)$	$S^2(\mathrm{SL}_2)$
3.		1	9	$(-2, 2, 0, 0)$ $(1, 0, 1, -1)$	$S^2(\mathrm{SL}_3) \oplus \mathrm{SL}_3^*$
		2	3	$(0, 1, 0, 0)$	SL_3
		3	1	$(2, 0, 0, 0)$	$\mathbb{C}$
4.		2	10	$(2, 0, 0, 0)$	$S^2(\mathrm{SL}_4)$
5.		2	6	$(0, 1, 0, 0)$	Sp_6
		4	1	$(2, 0, 0, 0)$	$\mathbb{C}$
6.		2	8	$(1, -1, 1, 0)$	$\mathrm{SL}_2 \otimes \mathrm{Sp}_4$
		4	3	$(2, 0, 0, 0)$	$S^2(\mathrm{SL}_2)$
7.		1	4	$(1, 0, 1, -1)$	$\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2$
		2	3	$(0, -2, 2, 0)$	$S^2(\mathrm{SL}_2^2)$
		3	4	$(1, -1, 1, 0)$	$\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2$
		4	3	$(2, 0, 0, 0)$	$S(\mathrm{SL}_2^1)$
8.		1	7	$(0, -2, 2, 0)$ $(1, 0, 1, -1)$	$S^2(\mathrm{SL}_2^2) \oplus (\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2)$
		2	4	$(1, -1, 1, 0)$	$\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2$
		3	3	$(2, 0, 0, 0)$	$S^2(\mathrm{SL}_2^1)$
9.		2	7	$(0, -2, 2, 0)$ $(1, 0, 1, -1)$	$S^2(\mathrm{SL}_2^2) \oplus (\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2)$
		4	4	$(1, -1, 1, 0)$	$\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2$
		6	3	$(2, 0, 0, 0)$	$\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2$
10.		1	6	$(-1, 1, -1, 1)$ $(1, 1, -1, 0)$	$(\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2) \oplus \mathrm{SL}_2^1$
<i>(continued on next page)</i>					

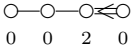
2000 *Mathematics Subject Classification.* 17B05;17B10;17B20;22E30.

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

Nilpotent orbits in type EI (continued)					
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Prehomogeneous space
		2	5	$(-2, 2, 0, 0)$ $(1, 0, -1, 1)$	$S^2(\mathrm{SL}_2^1) \oplus \mathrm{SL}_2^2$
		3	2	$(0, 1, 0, 0)$	SL_2^1
		4	1	$(2, 0, 0, 0)$	$\mathbb{C}$
11.		1	6	$(-1, 1, 1, -1)$ $(0, -2, 2, 0)$ $(2, -1, 0, 0)$	$\mathrm{SL}_2 \oplus S^2(\mathrm{SL}_2) \oplus \mathbb{C}$
		2	4	$(-1, 0, 1, 0)$ $(1, 0, 1, -1)$	$\mathrm{SL}_2 \oplus \mathrm{SL}_2$
		3	3	$(-2, 2, 0, 0)$ $(1, -1, 1, 0)$	$\mathbb{C} \oplus \mathrm{SL}_2$
		4	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		5	1	$(2, 0, 0, 0)$	$\mathbb{C}$
12.		2	9	$(-2, 2, 0, 0)$ $(1, 0, 1, -1)$	$S^2(\mathrm{SL}_3) \oplus \mathrm{SL}_3^*$
		4	3	$(0, 1, 0, 0)$	SL_3
		6	1	$(2, 0, 0, 0)$	$\mathbb{C}$
13.		2	3	$(1, 0, 1, -1)$	SL_3^*
		4	6	$(-2, 2, 0, 0)$	$S^2(\mathrm{SL}_3)$
		6	3	$(0, 1, 0, 0)$	SL_3
		8	1	$(2, 0, 0, 0)$	$\mathbb{C}$
14.		1	3	$(0, -1, 2, -1)$ $(0, 0, -2, 2)$ $(2, -1, 0, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		2	2	$(-1, 2, -1, 0)$ $(0, -1, 0, 1)$	$\mathbb{C} \oplus \mathbb{C}$
		3	3	$(-1, 1, 1, -1)$ $(0, -2, 2, 0)$ $(1, 1, -1, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		4	2	$(-1, 1, -1, 1)$ $(1, 0, 1, -1)$	$\mathbb{C} \oplus \mathbb{C}$
		5	2	$(-1, 0, 1, 0)$ $(1, 0, -1, 1)$	$\mathbb{C} \oplus \mathbb{C}$
		6	1	$(1, -1, 1, 0)$	$\mathbb{C}$
		7	1	$(-2, 2, 0, 0)$	$\mathbb{C}$
		8	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		9	1	$(2, 0, 0, 0)$	$\mathbb{C}$
15.		1	5	$(0, 0, -2, 2)$ $(-1, 1, 1, -1)$ $(1, 1, -1, 0)$	$\mathbb{C} \oplus \mathrm{SL}_2 \oplus \mathrm{SL}_2$
		2	3	$(-1, 1, -1, 1)$ $(1, 0, 1, -1)$	$\mathrm{SL}_2 \oplus \mathbb{C}$
		3	4	$(-2, 2, 0, 0)$ $(1, 0, -1, 1)$	$S^2(\mathrm{SL}_2) \oplus \mathbb{C}$
(continued on next page)					

Nilpotent orbits in type EI (continued)					
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Prehomogeneous space
		4	2	$(0, 1, 0, 0)$	SL_2
		5	1	$(2, 0, 0, 0)$	$\mathbb{C}$
16.		1	4	$(-1, 2, -1, 0)$ $(0, -1, 2, -1)$ $(0, 0, -2, 2)$ $(2, -1, 0, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus$ $\mathbb{C} \oplus \mathbb{C}$
		2	3	$(-1, 1, 1, -1)$ $(0, -1, 0, 1)$ $(1, 1, -1, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		3	3	$(-1, 1, -1, 1)$ $(0, -2, 2, 0)$ $(1, 0, 1, -1)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		4	2	$(-1, 0, 1, 0)$ $(1, 0, -1, 1)$	$\mathbb{C} \oplus \mathbb{C}$
		5	2	$(-2, 2, 0, 0)$ $(1, -1, 1, 0)$	$\mathbb{C} \oplus \mathbb{C}$
		6	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		7	1	$(2, 0, 0, 0)$	$\mathbb{C}$
17.		1	3	$(-1, 2, -1, 0)$ $(0, -1, 2, -1)$ $(2, -1, 0, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		2	3	$(0, 0, -2, 2)$ $(-1, 1, 1, -1)$ $(1, 1, -1, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		3	2	$(0, -1, 0, 1)$ $(1, 0, 1, -1)$	$\mathbb{C} \oplus \mathbb{C}$
		4	2	$(-1, 1, -1, 1)$ $(0, -2, 2, 0)$	$\mathbb{C} \oplus \mathbb{C}$
		5	2	$(-1, 0, 1, 0)$ $(1, 0, -1, 1)$	$\mathbb{C} \oplus \mathbb{C}$
		6	2	$(-2, 2, 0, 0)$ $(1, -1, 1, 0)$	$\mathbb{C} \oplus \mathbb{C}$
		7	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		8	1	$(2, 0, 0, 0)$	$\mathbb{C}$
18.		2	4	$(-1, 2, -1, 0)$ $(0, -1, 2, -1)$ $(0, 0, -2, 2)$ $(2, -1, 0, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus$ $\mathbb{C} \oplus \mathbb{C}$
		4	3	$(-1, 1, 1, -1)$ $(0, -1, 0, 1)$ $(1, 1, -1, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		6	3	$(-1, 1, -1, 1)$ $(0, -2, 2, 0)$ $(1, 0, 1, -1)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
(continued on next page)					

Nilpotent orbits in type EI (continued)					
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Prehomogeneous space
		8	2	$(-1, 0, 1, 0)$ $(1, 0, -1, 1)$	$\mathbb{C} \oplus \mathbb{C}$
		10	2	$(-2, 2, 0, 0)$ $(1, -1, 1, 0)$	$\mathbb{C} \oplus \mathbb{C}$
		12	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		14	1	$(2, 0, 0, 0)$	$\mathbb{C}$
19.		2	6	$(-1, 1, 1, -1)$ $(0, -2, 2, 0)$ $(2, -1, 0, 0)$	$\mathrm{SL}_2 \oplus$ $\mathrm{S}^2(\mathrm{SL}_2) \oplus \mathbb{C}$
		4	4	$(-1, 0, 1, 0)$ $(1, 0, 1, -1)$	$\mathrm{SL}_2 \oplus \mathrm{SL}_2$
		6	3	$(-2, 2, 0, 0)$ $(1, -1, 1, 0)$	$\mathbb{C} \oplus \mathrm{SL}_2$
		8	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		10	1	$(2, 0, 0, 0)$	$\mathbb{C}$
20.		2	2	$(-1, 2, -1, 0)$ $(0, -1, 2, -1)$	$\mathbb{C} \oplus \mathbb{C}$
		4	3	$(0, 0, -2, 2)$ $(-1, 1, 1, -1)$ $(2, -1, 0, 0)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		6	2	$(0, -1, 0, 1)$ $(1, 1, -1, 0)$	$\mathbb{C} \oplus \mathbb{C}$
		8	3	$(-1, 1, -1, 1)$ $(0, -2, 2, 0)$ $(1, 0, 1, -1)$	$\mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$
		10	1	$(-1, 0, 1, 0)$	$\mathbb{C}$
		12	2	$(-2, 2, 0, 0)$ $(1, 0, -1, 1)$	$\mathbb{C} \oplus \mathbb{C}$
		14	1	$(1, -1, 1, 0)$	$\mathbb{C}$
		16	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		20	1	$(2, 0, 0, 0)$	$\mathbb{C}$
21.		2	3	$(-1, 1, 1, -1)$ $(2, -1, 0, 0)$	$\mathrm{SL}_2 \oplus \mathbb{C}$
		4	5	$(0, -2, 2, 0)$ $(1, 0, 1, -1)$	$\mathrm{S}^2(\mathrm{SL}_2) \oplus \mathrm{SL}_2$
		6	2	$(-1, 0, 1, 0)$	SL_2
		8	3	$(-2, 2, 0, 0)$ $(1, -1, 1, 0)$	$\mathbb{C} \oplus \mathrm{SL}_2$
		10	1	$(0, 1, 0, 0)$	$\mathbb{C}$
		12	1	$(2, 0, 0, 0)$	$\mathbb{C}$
22.		2	4	$(0, -1, 0, 1)$ $(1, 1, -1, 0)$	$\mathrm{SL}_2^2 \oplus \mathrm{SL}_2^1$
		4	5	$(0, -2, 2, 0)$ $(1, 0, -1, 1)$	$\mathbb{C} \oplus (\mathrm{SL}_2^1 \otimes \mathrm{SL}_2^2)$
(continued on next page)					

Nilpotent orbits in type EI (continued)					
Orbit	$K_{\mathbb{C}}$ diagram	i	$\dim \mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Highest weights of $\mathfrak{g}_{\mathbb{C}}^i \cap \mathfrak{k}_{\mathbb{C}}$	Prehomogeneous space
		6	2	$(1, -1, 1, 0)$	SL_2^1
		8	3	$(2, 0, 0, 0)$	$\mathrm{S}^2(\mathrm{SL}_2^1)$
23.		2	6	$(1, 0, -1, 1)$	$\mathrm{SL}_3 \otimes \mathrm{SL}_2$
		4	6	$(2, 0, 0, 0)$	$\mathrm{S}^2(\mathrm{SL}_3)$

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