

be all the Schubert cycles $\{\sigma(p)\}_{p \in l_x}$, while the planes $\{\overline{x, L_\lambda}\}_{\lambda \in \mathbb{P}^1}$ associated to lines of the second ruling must be the Schubert cycles $\{\sigma(h)\}_{h \in l_x}$.

By the results on P746, since $\sigma_2 \cdot \sigma_2 = 1$,

$$\sigma(p) \cdot \sigma(p') = 1.$$

$$\sigma(p) \cap \sigma(h) \ni l \Rightarrow l \ni p \text{ and } l \subset h \Rightarrow l \in \sigma(p, h)$$

Conversely, if $l \in \sigma(p, h)$, then $l \in \sigma(p) \cap \sigma(h)$.

$\Rightarrow \sigma(p) \cdot \sigma(h) = \sigma(p, h)$ is a line in \mathbb{P}^5 by P756.

If $\overline{x, L_\lambda} = \sigma(p)$, $p \in l_x$, then $\overline{x, L_{\lambda'}} = \sigma(p')$ for some $p' \in l_x$, for if $\overline{x, L_{\lambda'}} = \sigma(h)$,

then $\sigma(p) \cdot \sigma(h)$ is a line, which is impossible since $\overline{x, L_\lambda} \cap \overline{x, L_{\lambda'}} = \{x\}$.

Similarly, $\sigma(h) \cdot \sigma(h) = 1$. If $\overline{x, L_\lambda} = \sigma(h)$, then $\overline{x, L_{\lambda'}} = \sigma(h')$.

It remains to show that for a given $\sigma(p)$ for some $p \in l_x$, then $\overline{x, L_\lambda} = \sigma(p)$.

By the observations on P734, P736, since $\sigma(p)$ is a 2-plane containing x , $\sigma(p)$ is spanned by x and a line in Q . (Actually, by construction). \Rightarrow By the argument on P478, any line in Q is from one of two families.

$\Rightarrow \sigma(p) = \overline{x, L_\lambda}$, $\lambda \in \mathbb{P}^1$. Similarly, for $\sigma(h)$. □