DATE . . PAGE

Thus locally we can lift $-\partial/\partial t$ to $U \cap Y'$ and U. By the partition of unity, we have a lifted vector field v and v' on X' and Y' respectively. Let φ_t be the flow of v. $\Rightarrow$ $\varphi_t|_{Y'}$ is the flow of v'. $\Rightarrow$ By the argument above, $\varphi_1 : S \longrightarrow S_0$ is diffeomorphism, and $\varphi_1|_H : S \cap H \longrightarrow S_0 \cap H$ is diffeomorphism, too.

The application of the argument above to hypersurfaces of degree d in $\mathbb{P}^n$ is clearly plausible. $\lrcorner\!\!\lrcorner$

Now by the adjunction formula applied to $S \subset \mathbb{P}^3$,

$$\begin{aligned} K_S &= (K_{\mathbb{P}^3} + S)|_S \\ &= -H|_S \end{aligned}$$

and similarly $K_{S_0} = -H|_{S_0}$.

$\ulcorner$ By P147,
$$\begin{aligned} K_S &= (K_{\mathbb{P}^3} \otimes [S])|_S \\ &= ([-4H] \otimes [3H])|_S \quad \text{by P146} \\ &= [-H]|_S . \end{aligned}$$
$\lrcorner\!\!\lrcorner$

Since our diffeomorphism $\varphi : S \longrightarrow S_0$ carries $S \cap H$ to $S_0 \cap H$, we deduce that
$$c_1(K_S) = \varphi^* c_1(K_{S_0}).$$

$\ulcorner$
$$\begin{tikzcd} i^*[H] \arrow[r] \arrow[d] & {[H]} \arrow[d] \\ S \arrow[r, hook, "i"] & \mathbb{P}^3 \end{tikzcd}$$
$$\Rightarrow i^*[H] = [S \cap H] = [H]|_S = -K_S = K_S^*$$

$\Rightarrow$ Similary, $i^*[H] = -K_{S_0} = K_{S_0}^*$.