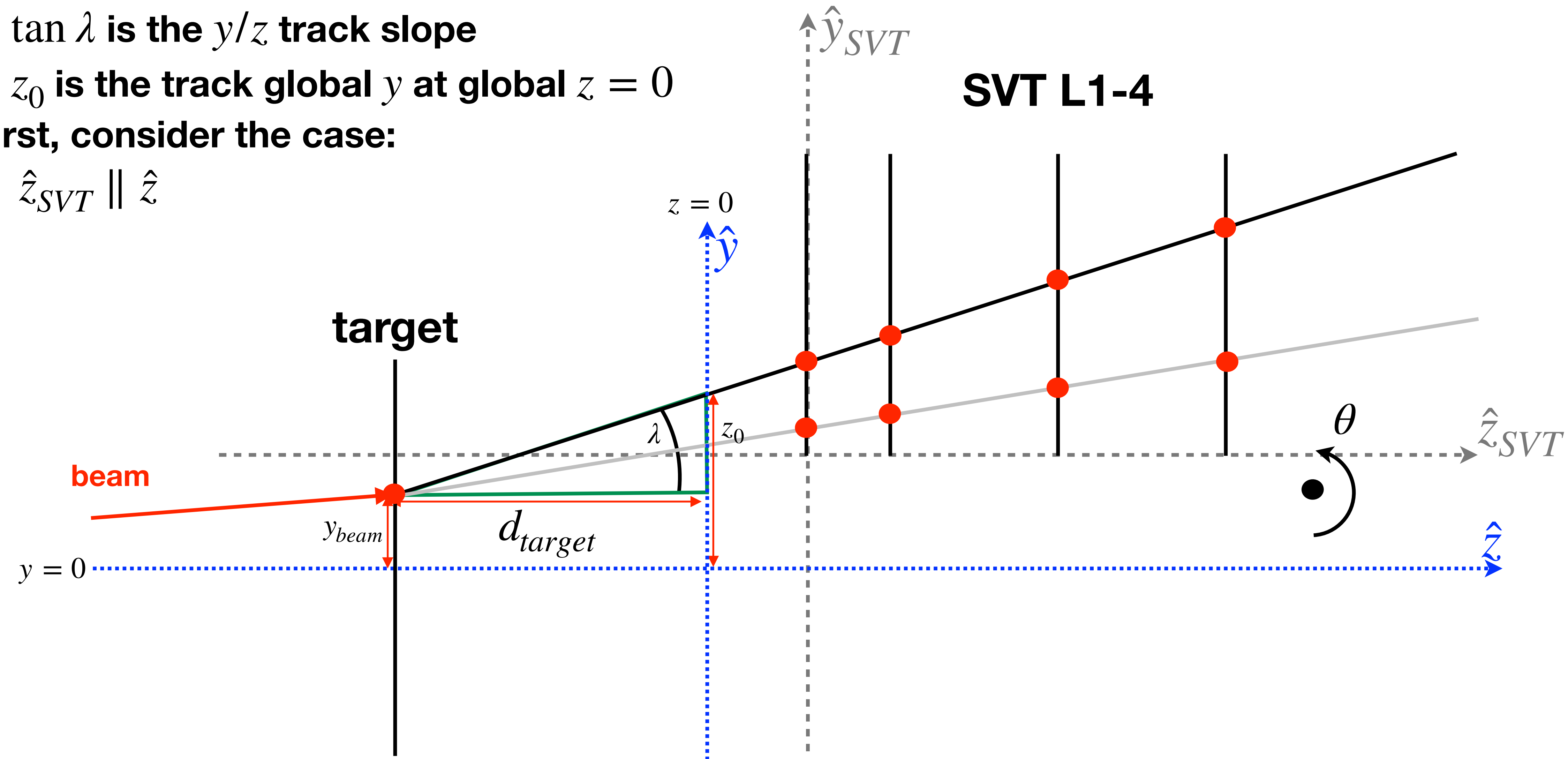
approximately speaking:

- $\tan\lambda$ **is the** y/z **track slope**
- z_0 **is the track global** y **at global** $z = 0$

First, consider the case:

- $\hat{z}_{SVT} \parallel \hat{z}$



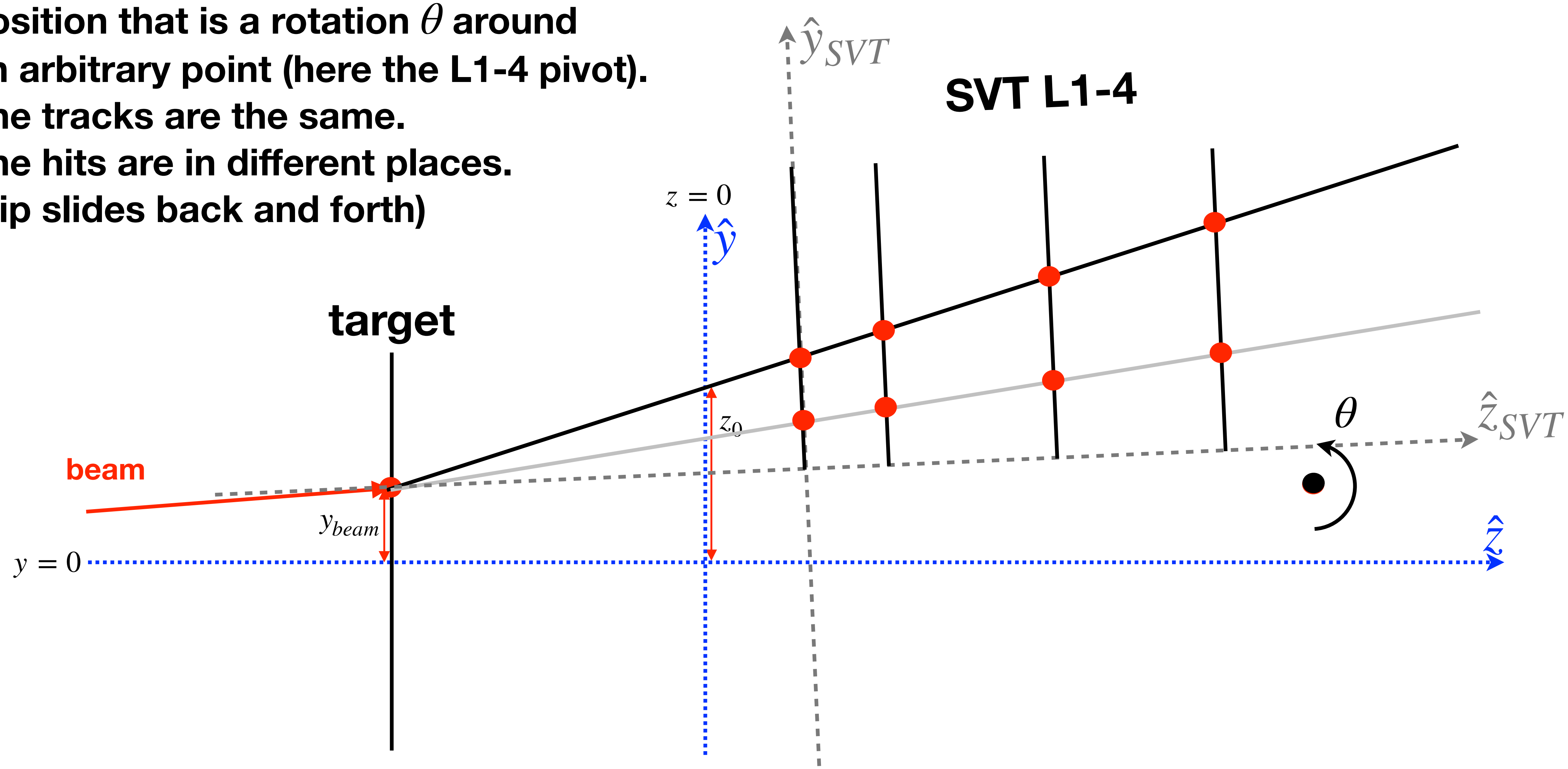
$$\tan\lambda = \frac{z_0 - y_{beam}}{d_{target}} \Longrightarrow z_0 = d_{target}\tan\lambda + y_{beam}$$

So, one plots z_0 **vs.** $\tan\lambda$ **and fits to extract the slope (**d_{target}**) and intercept (**y_{beam}**).**

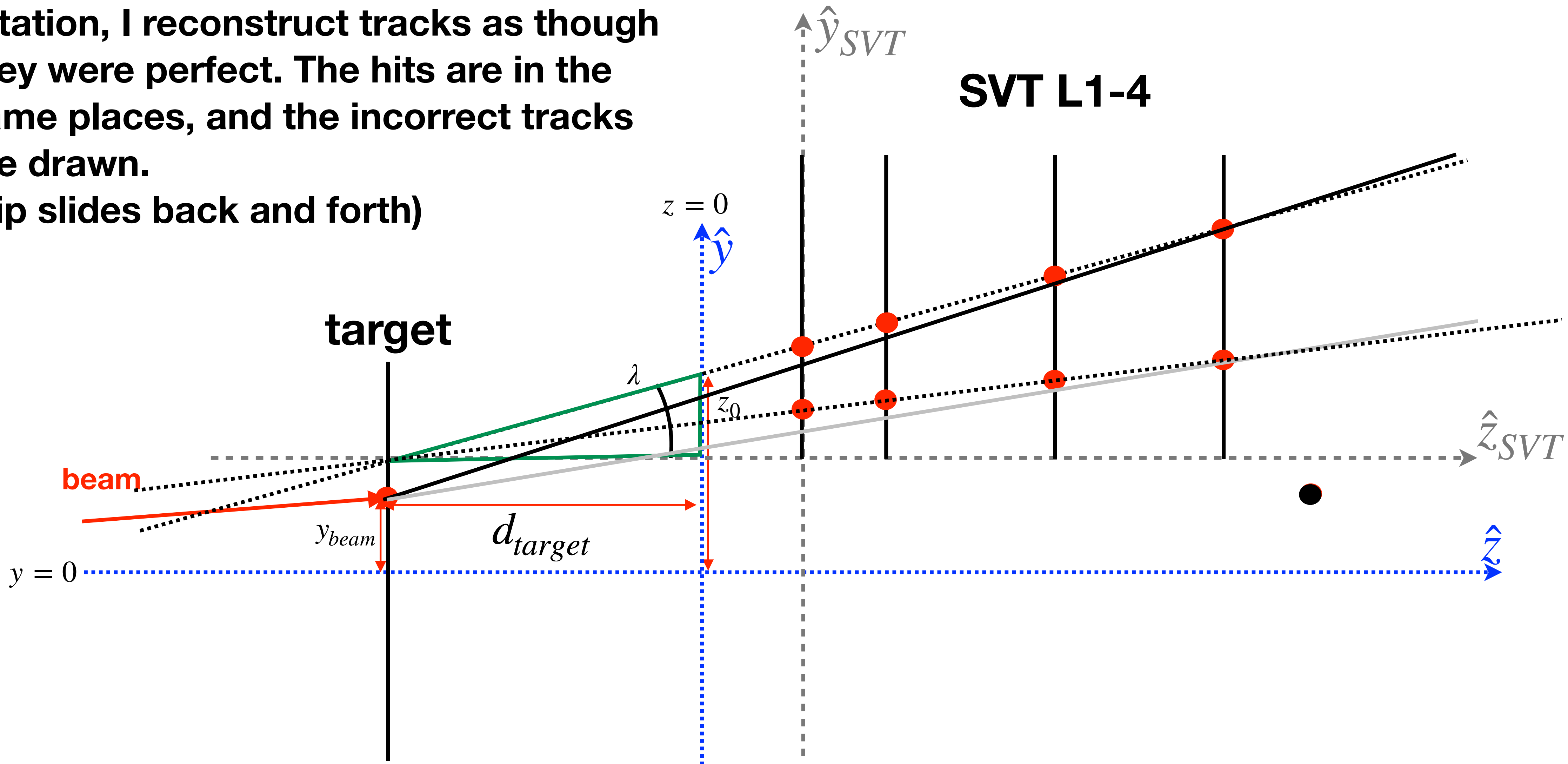
n.b. $\dfrac{z_0}{\tan\lambda} = d_{target} + \dfrac{y_{beam}}{\tan\lambda}$ **so that this quantity is not generally meaningful**

n.b. also that the actual direction of the beam is irrelevant, only where it hits the target

Now, introduce an error in the SVT position that is a rotation θ around an arbitrary point (here the L1-4 pivot).
The tracks are the same.
The hits are in different places.
(flip slides back and forth)



But, because I don't know about the rotation, I reconstruct tracks as though they were perfect. The hits are in the same places, and the incorrect tracks are drawn.
(flip slides back and forth)



Now, if one plots z_0 vs. $\tan\lambda$ and fits to extract the slope (d_{target}) and intercept(y_{beam}), one gets a very different intercept (depending on the point rotated around, only the same if that point is in the target plane), but the slope (the relationship between the track slope ($\tan\lambda$) and z_0 changes negligibly. (There is a $\cos\theta$ factor which is very difficult to draw in a clear way at the scale where one can see the whole detector for small θ, but it's easy enough to see where it comes from in the angular misalignment between SVT and tracking frames)