TSL / OIM Reference Frames

$Z_{spatial}$ points *in* to the plane
Z_{Euler} points *out* of the plane

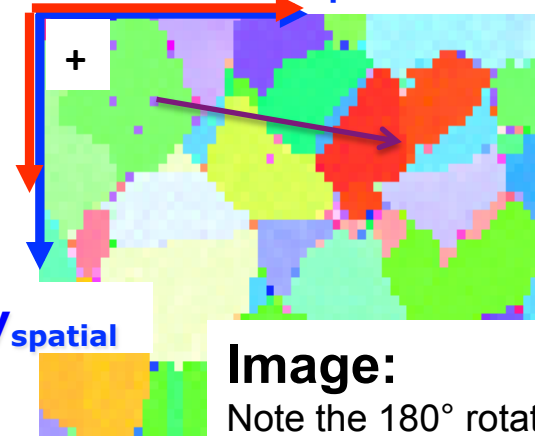$TD = y_{Euler} = 010_{sample}$ $x_{spatial}$

The purple line indicates a direction, associated with, say, a scratch, or trace of a grain boundary on the specimen.

$RD = x_{Euler}$
$= 100_{sample}$
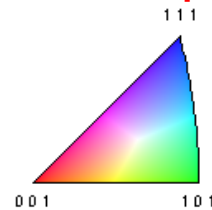
Physical specimen:
Mounted in the SEM, the tilt axis is parallel to "$x_{spatial}$"

111

$y_{spatial}$

001   101

Image:
Note the 180° rotation.

ND
$= z_{Euler}$

Sample Reference Frame for Orientations/Euler Angles

-TD
$= -y_{Euler}$

-RD
$= -x_{Euler}$
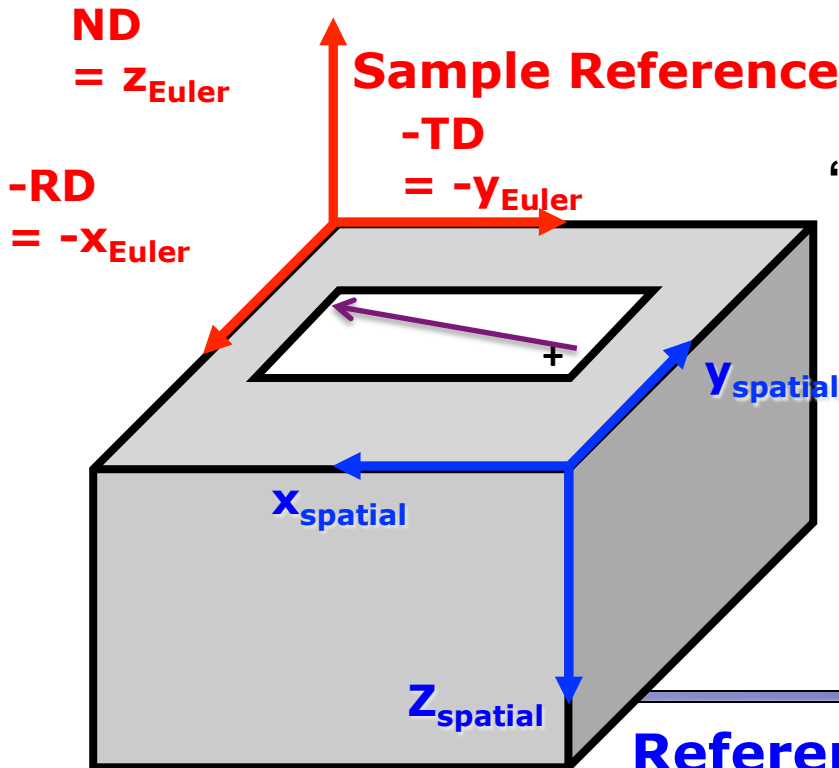
"+" denotes the Origin

$y_{spatial}$

Crystal Reference Frame:

Remember that, to obtain directions and tensor quantities in the crystal frame for each grain (starting from coordinates expressed in the Euler frame), one must use the Euler angles to obtain a transformation matrix (or equivalent).

$x_{spatial}$

$Z_{spatial}$

Reference Frame for Spatial Coordinates