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How to convert particle from cs to relion3.1:

1. after 2d/3d is finish in cs

2. download the passthroufh\_particles.cs file or use the export option in cs and then all the file will be in cs expot directory.

3. convert to relion with the command: 'csparc2star.py cryosparc\_exp\_etc.cs from\_cryosparc.star --swapxy'

4. copy the .star file AND the particles stack to the relion directory (make sure to copy the particles not the s-link)

5. change the particles stack name from xxx.mrc --> xxx.mrcs

6. edit the .star file to reflect the micrograph path and particles stack path

7. add data\_optic table like below

8. you can use: 'relion\_convert\_star --i --o --Cs 2.7 --Q0 0.1' to make the data\_optic table

9. delet \_rlnRandomSubset from header and the table.

10. now you should be able to import the particle

if the particles was export with relion need to do this:

[https://github.com/asarnow/pyem/wiki/Export-from-cryoSPARC-v2]

Particles extracted outside cryoSPARC

For particles extracted outside cryoSPARC (e.g. in Relion), we can recover the extra parameters from the .star file used for import.

First, we need to revert the cryoSPARC import paths in the converted .star file:

##sed -i 's/J9\/imported/Extract\/job010/g' <csparc.star>

The star.py command can then merge micrograph names and particle coordinates from the original STAR file used to create the cryoSPARC dataset back into the converted STAR file.

star.py --copy-micrograph-coordinates ,original\_particles.star> from\_cryosparc.star from\_csparc\_with\_coords.star

ex. from the hev-103-117 project:

star.py --copy-micrograph-coordinates /home/binshtem/project/hev\_103-117/Extract/job017/particles.star from\_cryosparc.star from\_csparc\_with\_coords.star

# version 30001

data\_optics

loop\_

\_rlnOpticsGroup #1

\_rlnOpticsGroupName #2

\_rlnMtfFileName #3

\_rlnMicrographOriginalPixelSize #4

\_rlnVoltage #5

\_rlnSphericalAberration #6

\_rlnAmplitudeContrast #7

\_rlnDetectorPixelSize #8

\_rlnImageSize #9

\_rlnImageDimensionality #10

1 opticsGroup1 /home/binshtem/mtf\_files/mtf\_k2-300kev.star 0.860800 300.000000 2.700000 0.100000 2.017500 512 2