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# Half sets for FSC

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Daniel Asarnow

Half sets for FSC

Hi Tim,

How are the particles split for FSC calculations? Even/odd, 1st half / 2nd half, completely random, etc.

If possible I'd like my par2star.py program to output the same split.  
Thanks.





timgrant

Hi Dan,

Hi Dan,

This is maybe a little difficult, If running from the command line you are given the option "FSC calculation with even/odd particles". If you set this to true it will be even odd. If you set it to false (and the GUI always sets it to false) then the relevant code is :-

```
        if (! split_even_odd) fsc_particle_repeat =
myroundint((input_star_file.ReturnMaxPositionInStack() -
input_star_file.ReturnMinPositionInStack() + 1.0) /
100.0);
        if (fsc_particle_repeat > images_to_process)
fsc_particle_repeat = images_to_process;
        if (fsc_particle_repeat % 2 != 0)
fsc_particle_repeat++;
```

Then, when the images are being inserted the decision is taken as :-

```
        if (input_parameters.position_in_stack %
fsc_particle_repeat < fsc_particle_repeat / 2)
        {
            input_particle.insert_even = true;
        }
        else
        {
            input_particle.insert_even = false;
        }
```

Basically there is a run length which is either number of particles that the given process is processing / 100 (or +1 if needed to make it even). The first half of that run length is put into the first reconstruction, the second half into the second. However exactly where it goes depends on how many images that particular process was given to process, so would be hard to predict after the fact.

It is done this way to try and minimize double picks of the same particle ending up in the same half map.

Cheers,

Tim







Daniel Asarnow

Thanks for the explanation!

Thanks for the explanation! Of course it makes sense the split doesn't matter very much with resolution-limited refinement. I'm mostly asking due to a cryoSPARC bug where the random subset is needed for alignments to be imported. They'll fix this eventually, or I'll just add some reasonable value (e.g. random over micrographs).

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