

## Dataset to support the article "Manifestation of many-body interactions in the integer quantum Hall effect regime"

J. Oswald, RA Roemer, <http://wrap.warwick.ac.uk/id/eprint/86004>

This dataset pertains to the article

Oswald, J. & Römer, R. A. Manifestation of many-body interactions in the integer quantum Hall effect regime. (2017) at <http://arxiv.org/abs/1707.01364>

as well as

Oswald, J. & Römer, R. A. Exchange-mediated dynamic screening in the integer quantum Hall effect regime. EPL (Europhysics Lett. 117, 57009 (2017) with dataset at <http://wrap.warwick.ac.uk/86004/>

The data set contains a set of .zip files for **original data** and constructed **videos** of varying magnetic field B and varying electronic charge density n.

The .zip files are named as to whether their data content has been calculated using the fully self-consistent Hartree-Fock approach (HF), the self-consistent Hartree approach (HH) or without any interaction (00).

The .zip files for videos carry in addition in their filename the format of the videos as generated. These are GIF, for old-fashioned gif images, MKV and MPP for more modern formats (generated with rather old codecs using the ffmpeg command for compatibility).

Filenames with "Mathematica" show the Mathematica 11.x (Wolfram Research) software codes used to extract the videos from the data.

The .zip files with data in the filename contain the original data generated as explained in the publications above. The files in the archive are all ASCII text file, normally called hall\_edge\*.dat and CD\_N\*.dat with \* representing various input parameters such as the specific magnetic field and density used as well as the size of the samples, etc. The content of the files themselves are simple columns of data. The CD\_N\*.dat files, e.g., contain 4 columns of which column 1 and 2 are the spatial coordinates and the 4<sup>th</sup> column is the computing filling factor.