Mosaic: a code for power spectrum analysis in multiple patches

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1 Intro

Mosaic is a set of tools for computing angular power spectra in healpix and CAR pixellisation using the Master algorithm (arxiv:0105302). It makes heavy use of healpix function (https://healpix.sourceforge.io/) and enlib function (see Sigurd Naess github: https://github.com/amaurea), and has benefited from Eiichiro Komatsu tools (https://www.mpa.mpa-garching.mpg.de/ komatsu/), SPHT are performed using libsharp (arXiv:1303.4945) so we are especially thankful to Martin Reinecke and Dag Sverre Seljebotn. The code also allows to make comparison with NaMaster (see David Alonso github: https://github.com/damonge/). While the bugs are all on me, special thanks for Sigurd Naess for help with the code.

2 Installation

The code is mostly written in python apart from the mode coupling calculation written in fortran 90. You need to compile it using f2py. You should

3 Code structure

The code is structured around four executables (located in the *bin* directory):

1. *iso_generate_sims.py*
2. *iso_generate_window_functions.py*
3. *iso_generate_mcms.py*
4. *iso_generate_all_spectra.py*
5. *iso_generate_mc_results.py*
6. *iso_generate_plots.py*

They should be run in order. Two other executables: *iso_generate_plots.py* and *iso_generate_mc_results.py* allow for visualisation and combination of the results.

3.1 Generation of simulations

Gaussian simulations are generated from a camb lensed power spectrum.