Documentation for `bg_adder.py`

Overview

This script processes a directory of FITS files. It filters files based on solar angle, selects background files, and merges contiguous files.

Dependencies

The script relies on the following Python libraries:

- **os**: For file and directory operations.
- **shutil**: For file copying.
- **astropy.io.fits**: For reading and manipulating FITS files.
- **numpy**: For numerical operations.
- **subprocess**: For executing external commands.

Functions

`isBG(fits_file)`

Checks if the FITS file corresponds to a background (BG) file based on the `SOLARANG` header value.

- **Parameters:** `fits_file`: Path to the FITS file.
- **Returns:** `True` if the file is a background file, `False` otherwise.

`add_fits_files(file_list, output_dir, fits_directory)`

Merges contiguous FITS files using the external `gdl` command and generates a combined output file.

- **Parameters:**
  - `file_list`: List of FITS files to merge.
  - `output_dir`: Directory to store the combined file.
  - `fits_directory`: Directory containing the original FITS files.
- **Returns:** Path to the combined output file.

`main(fits_directory, compiled_folder)`

Main logic to process all FITS files in the specified directory:

- Filters out background files.
- Merges contiguous files.

Execution

Command-line Arguments

- `--fits_directory` or `-d`: Path to the directory containing FITS files.
- `--compiled_folder` or `-c`: Path to the directory where processed files will be stored.

How to Run

Example command:

```
python bg_adder.py -d /path/to/fits/files -c /path/to/compiled/files
```

Output

- **Merged Files:** Contiguous files are combined and stored in the compiled folder.