dft_comparison

September 15, 2020

[1]:
```
%matplotlib inline
```

[2]:
```
import numpy as np
from matplotlib import pyplot as plt
from matplotlib.colors import LogNorm, Normalize
from pathlib import Path
```

[17]:
```
basefile = Path("./LWA")
filename = "EPIC_1518451851.248535_25.610MHz.npz"
```

[18]:
```
run1_file = basefile / "dft"/ "run_1" / filename
run1 = np.load(run1_file, allow_pickle=True)
```

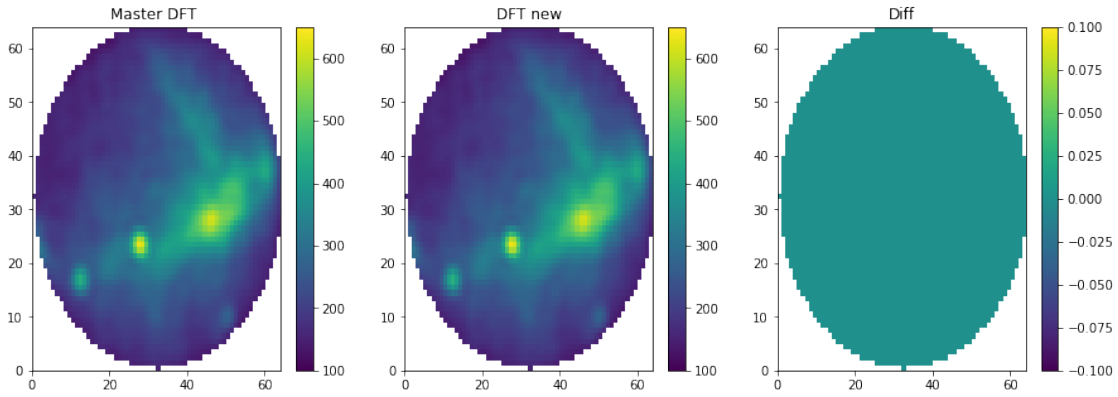
[27]:
```
run2_file = basefile / "dft"/ "run_2" / filename
run2 = np.load(run2_file, allow_pickle=True)
```

[28]:
```
fig, ax = plt.subplots(ncols=3, figsize=(15,5))

inds = (0, 0, 0)
# norm = LogNorm(vmax=4e7, vmin=1e7)
norm = Normalize(vmax=650, vmin=100)
im = ax[0].pcolorfast(run1["image"][inds].reshape(64, 64).real, norm=norm)
fig.colorbar(im, ax=ax[0]);
ax[0].set_title("Master DFT ");

im = ax[1].pcolorfast(run2["image"][inds].reshape(64,64).real, norm=norm)
fig.colorbar(im, ax=ax[1]);
ax[1].set_title("DFT new");

im = ax[2].pcolorfast(
    (run1["image"][inds] - run2["image"][inds]).reshape(64, 64).real
)
fig.colorbar(im, ax=ax[2]);
ax[2].set_title("Diff");
```



[29]:
```
for i in range(40):
    print(i,
          np.allclose(
              np.ma.masked_invalid(run1["image"][i]),
              np.ma.masked_invalid(run2["image"][i])
          )
     )
```

```
0 True
1 False
2 False
3 False
4 False
5 False
6 True
7 True
8 True
9 True
10 False
11 True
12 False
13 True
14 False
15 True
16 True
17 True
18 True
19 True
20 False
21 False
22 True
23 True
24 True
```

```
25 False
26 True
27 True
28 True
29 True
30 True
31 True
32 True
33 False
34 True
35 True
36 True
37 False
38 False
39 True
```

[32]:
```
np.max(np.abs(np.ma.masked_invalid(run1["image"] - run2["image"])))
```

[32]:
```
381.41187
```

[34]:
```
np.unravel_index(
    np.argmax(
        np.abs(
            np.ma.masked_invalid(run1["image"]-run2["image"])
        )
    ),
    run1["image"].shape,
)
```

[34]:
```
(21, 2, 0, 1500)
```

[ ]:
```

```