perm_data_extract

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0.1 Analysis of perm data from SPE website

[2]:
```
perm_data_array = []
with open("spe_perm.dat",'r') as perm_file:
    for ind, line in enumerate(perm_file):
        perm_data_array += list(map(float, line.strip().split()))
```

[9]:
```
#Extracting the bottom 60x220 data set
num_bot_layer_dat = 60*220*3
perm_bot_layer = perm_data_array[-num_bot_layer_dat:]
```

[36]:
```
perm_x_bottom_layer = [perm_bot_layer[i] for i in␣
↪range(0,len(perm_bot_layer),3)]
```

[37]:
```
len(perm_x_bottom_layer)
```

[37]: 13200

[38]:
```
min(perm_x_bottom_layer)
```

[38]: 1.441e-07

[39]:
```
max(perm_x_bottom_layer)
```

[39]: 6000.0

[29]:
```
perm_top_layer = perm_data_array[:num_bot_layer_dat]
perm_x_top_layer = [perm_top_layer[i] for i in range(0,len(perm_top_layer),3)]
```

[30]:
```
len(perm_x_top_layer)
max(perm_x_top_layer)
```

[30]: 20000.0

[31]:
```
min(perm_x_top_layer)
```

[31]: 0.000713

0.2 Conclusion for spe_perm.dat file analysis

- For spe_perm.dat file, we defined the top layer to be the K_x from frist 60x220 data points and bottom layer to be K_x from last 60x220 points.
- For top layer: **kmax = 20000.0** and **kmin = 0.000713**.
- For bottom layer: **kmax = 6000.0** and **kmin = 1.441e-07**.

0.3 Analysis of the permx.dat sent

[44]:
```
permx_data_array = []
with open("permx.dat",'r') as permx_file:
    for ind, line in enumerate(permx_file):
        if ind==0:
            continue
        permx_data_array += list(map(float, line.strip().split()))
```

[47]:
```
max(permx_data_array)
```

[47]:
```
9999.999023
```

[49]:
```
min(permx_data_array)
```

[49]:
```
1.0
```

[51]:
```
permx_data_array[:10]
```

[51]:
```
[1.031131864,
 1.01590395,
 1.015794873,
 7.290384769,
 13.7503891,
 25.7747364,
 56.01986313,
 2.581590891,
 933.265625,
 278.4176331]
```

0.4 Conclusion for permx.dat file analysis

- We are given only a single layer of 60x220 data set.
- **kmax = 9999.999023** and **kmin = 1.0**.

[ ]:
```

```