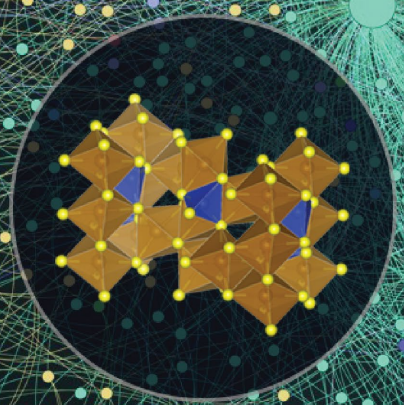
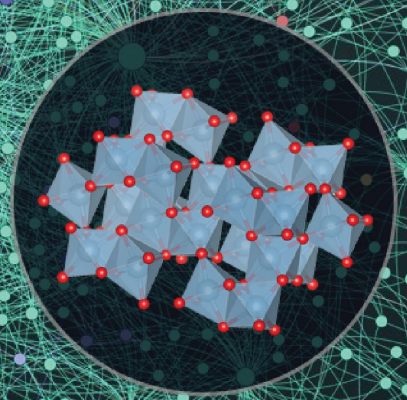
2 pt statistics





PyMKS is a useful library to carry out 2-point spatial correlations

version:
0.4.1+11.g5aeb56c.dirty

Navigation

PyMKS Introduction

In this notebook, we are demonstrating simple case studies for calculating 2-point spatial correlations on an experimental microstructure as well as synthetic microstructures. First, we will demonstrate how to calculate spatial correlations for a single 2 phase experimental image. Then, we will demonstrate the most efficient way to calculate 2-point spatial correlations on multiple microstructures without using any for-loops. We will only use common python packages like Numpy, Scikit-learn, and Matplotlib for this introductory notebook. For parallel computation PyMKS uses Dask, but we will not be using Dask in this Notebook. Please see the Effective Stiffness of a Composite Material example or Effective Stiffness of Fiber Composite notebooks that both implement parallel workflows using Scikit-learn pipelines.

Importing the necessary packages.

[1]:
```
import warnings
warnings.filterwarnings('ignore')
import numpy as np
import matplotlib.pyplot as plt
from sklearn.decomposition import PCA
from mpl_toolkits.mplot3d import Axes3D
from PIL import Image

from pymks import (
    generate_multiphase,
    plot_microstructures,
    PrimitiveTransformer,
    TwoPointCorrelation,
    FlattenTransformer
)
```

[2]:
```
from sklearn.decomposition import PCA
#PYTEST_VALIDATE_IGNORE_OUTPUT

# %matplotlib inline
%load_ext autoreload
%autoreload 2
```

molecular strings and fingerprints