In [3]:
```
import numpy as np
import pandas as pd
import math
import matplotlib.pyplot as plt
```

In [15]:
```
# Radius Measurements for Ag NanoParticles Away From Light Source
```

In [4]:
```
def Ag_MNP(reswl, fwhmwl):


    return (0.0139 * 10 ** 8) * (reswl ** 2) / (2 * math.pi * 3 * 10 ** 8 * fwhmwl)
```

In [5]:
```
# Ag; 4e16
```

In [11]:
```
print(f'Ag MNP Radius: {Ag_MNP(428 * 10 ** -9, 101.82256 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.3266525722960479e-09m
```

In [ ]:
```
# Ag; 5e16
```

In [12]:
```
print(f'Ag MNP Radius: {Ag_MNP(428 * 10 ** -9, 102.64834 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.3159799870291976e-09m
```

In [ ]:
```
# Ag; 6e16
```

In [13]:
```
print(f'Ag MNP Radius: {Ag_MNP(425 * 10 ** -9, 89.78086 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.483569089536578e-09m
```

In [ ]:
```
# Ag; 7e16
```

In [14]:
```
print(f'Ag MNP Radius: {Ag_MNP(434 * 10 ** -9, 111.62486 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.2443203649800378e-09m
```

In [ ]:
```
# Radius Measurements for Ag NanoParticles Towards Light Source
```

In [ ]:
```
#Ag; 4e16
```

In [16]:
```
print(f'Ag MNP Radius: {Ag_MNP(428 * 10 ** -9, 100.88024 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.3390448034398875e-09m
```

In [ ]:
```
# Ag; 5e16
```

In [17]:
```
print(f'Ag MNP Radius: {Ag_MNP(428 * 10 ** -9, 102.89892 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.312775305530599e-09m
```

In [ ]:
```
# Ag; 6e16
```

In [18]:
```
print(f'Ag MNP Radius: {Ag_MNP(425 * 10 ** -9, 93.57833 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.423364882959666e-09m
```

In [ ]:
```
# Ag; 7e16
```

In [19]:
```
print(f'Ag MNP Radius: {Ag_MNP(434 * 10 ** -9, 111.3584 * 10 ** -9)}m')
```

```
Ag MNP Radius: 1.2472977928566289e-09m
```

In [ ]:
```

```