

LAB_1_Report_AK

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1 Laboratorium 1: Spectral Analysis of Deterministic Signals

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[ ]: import numpy as np
import matplotlib.pyplot as plt

#Variant 12
N = 13
x_mu = np.array([10, 5, 6, 6, 2, 4, 3, 4, 5, 0, 0, 0, 0])

n = np.arange(N)
x_n = np.zeros(N, dtype=complex)

for k in range(N):
    x_n += (1/N) * x_mu[k] * np.exp(2j * np.pi * k * n / N)

x_n = np.real(x_n)

print(x_n)

plt.figure(figsize=(10, 4))
markerline, stemlines, baseline = plt.stem(n, x_n)
plt.setp(markerline, 'markerfacecolor', 'b')
plt.setp(stemlines, 'color', 'b')
plt.setp(baseline, 'color', 'r', 'linewidth', 2)
plt.title("Sygnał czasu dyskretnego x(n)")
plt.xlabel("n")
plt.ylabel("x(n)")
plt.grid(True)
plt.show()

[3.46153846 0.33203765 0.82100341 0.33025559 0.34828442 1.07184932
 0.36580037 0.36580037 1.07184932 0.34828442 0.33025559 0.82100341
 0.33203765]
```

