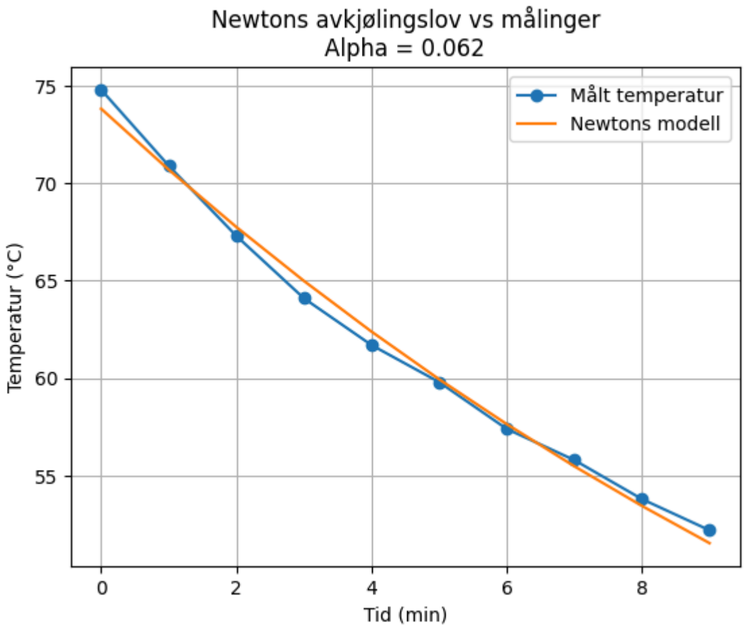
In [5]:
```python
import numpy as np
import matplotlib.pyplot as plt
from scipy.optimize import curve_fit

tid = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
målt_temp = np.array([74.8, 70.9, 67.3, 64.1, 61.7, 59.8, 57.4, 55.8, 53.8, 52.2])
T_k = 21.4

def newton_kjøling(t, T0, alpha):
    return T_k + (T0 - T_k) * np.exp(-alpha * t)

# Tilpasning og estimering av a og T0
popt, pcov = curve_fit(newton_kjøling, tid, målt_temp, p0=[75, 0.1])
T0_fit, alpha_fit = popt

modell_temp = newton_kjøling(tid, T0_fit, alpha_fit)

plt.plot(tid, målt_temp, 'o-', label="Målt temperatur")
plt.plot(tid, modell_temp, '-', label="Newtons modell")
plt.xlabel("Tid (min)")
plt.ylabel("Temperatur (°C)")
plt.legend()
plt.title(f"Newtons avkjølingslov vs målinger\nAlpha = {alpha_fit:.3f}")
plt.grid()
plt.show()

print(f"Estimerte verdier:")
print(f" - Alpha (α): {alpha_fit:.3f}")
print(f" - Initial temperatur (T_0): {T0_fit:.2f} °C")
```



Estimerte verdier:
- Alpha (α): 0.062
- Initial temperatur (T_0): 73.83 °C