Feedback Plots

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Generates plots of k_{eff} with respect to a temperature change and a moderator density change to show that temperature change within the fuel is the dominate effect.

In [42]:
```
# imports
from matplotlib import pyplot as plt
import numpy as np
```

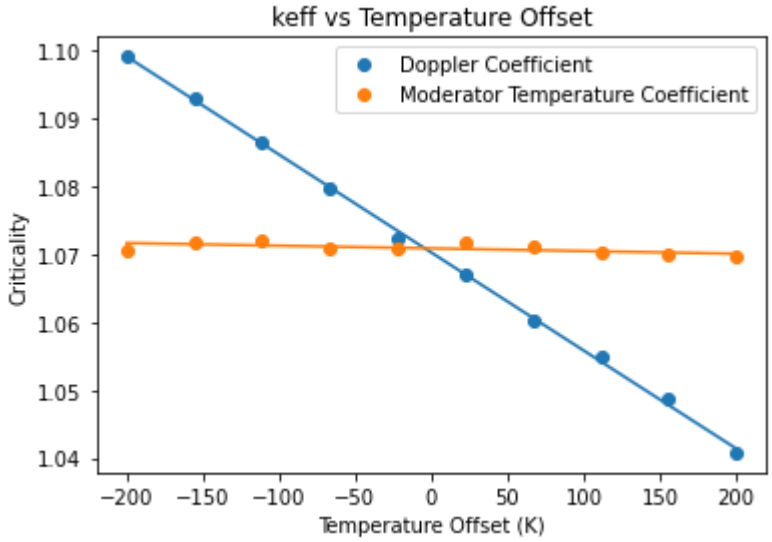
In [44]:
```
# data from previous simulation runs:
doppler_temps = [-200.0,-155.55555555555554,-111.11111111111111,-66.6666
doppler_crit = [1.0990704014192465,1.093082489813471,1.0866016805732654,
mod_void_crit = [1.070577280132804,1.0717554400997706,1.0721221342964269

# plot doppler feedback coefficient.
# the doppler feedback coefficient, in this case, comes largely due to th
plt.plot(doppler_temps,doppler_crit,'o',label="Doppler Coefficient")
m,b = np.polyfit(doppler_temps,doppler_crit,1)
plt.plot(doppler_temps,np.polyval((m,b),doppler_temps),c='tab:blue')

# plot the moderator temp coefficient
# contrary to a typical PWR today, most of the feedback comes from the fu
plt.plot(doppler_temps,mod_void_crit,'o',label="Moderator Temperature Coe
m,b = np.polyfit(doppler_temps,mod_void_crit,1)
plt.plot(doppler_temps,np.polyval((m,b),doppler_temps),c='tab:orange')

plt.title("keff vs Temperature Offset")
plt.xlabel("Temperature Offset (K)")
plt.ylabel("Criticality")
plt.legend()
```

Out[44]: <matplotlib.legend.Legend at 0x7febd80cb280>



In [ ]: