A graph showing the behavior of $g^{(2)}(\tau)$ with respect to $\tau$ for different states:

- **Blue line**: Coherent state
- **Orange line**: Thermal state
- **Green line**: Fock state

The graph indicates that as $\tau$ increases, the $g^{(2)}(\tau)$ value decreases for all states. The coherent state remains relatively constant, while the thermal state shows a more significant decrease. The Fock state shows a gradual increase.