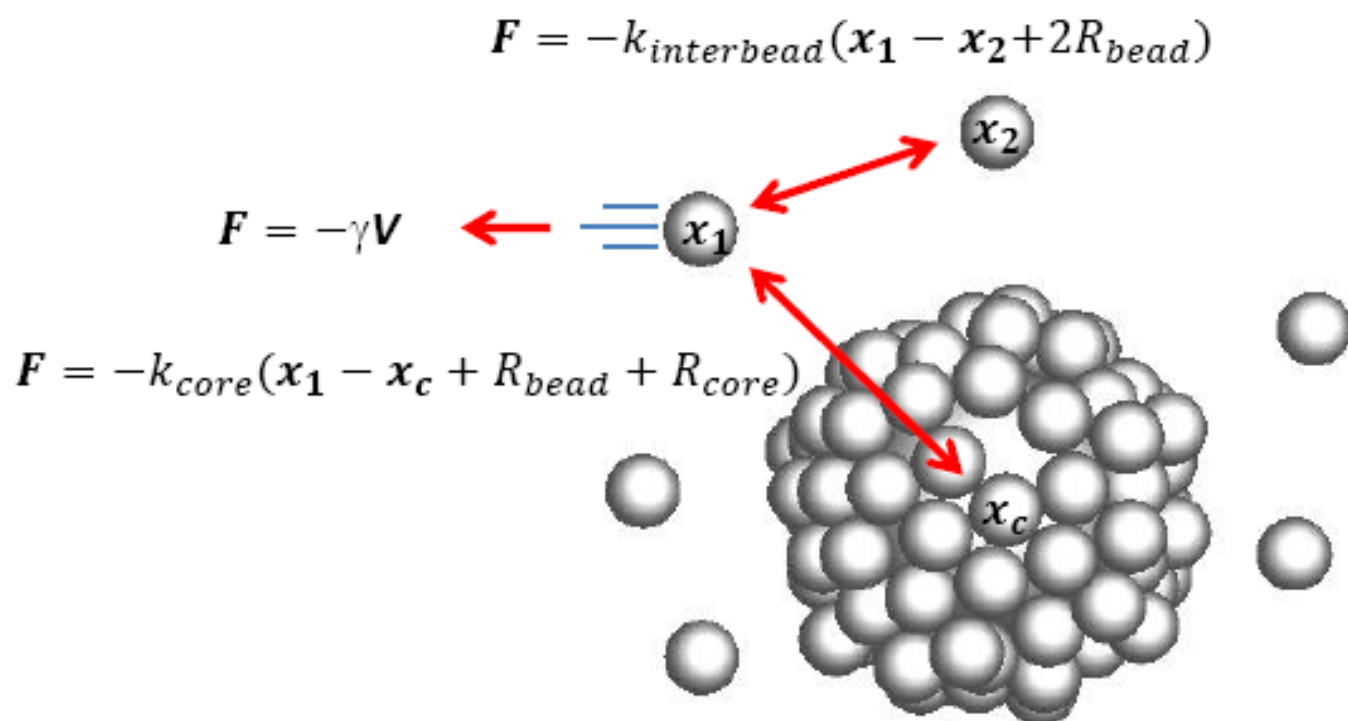


# Constructing the nanoparticle model



$$\begin{aligned}
 k_{interbead} &= 0 \text{ if } |x_1 - x_2| > 2R_{bead} \\
 k_{interbead} &= +B \text{ if } |x_1 - x_2| < 2R_{bead} \\
 k_{core} &= +C \text{ if } |x_1 - x_2| > R_{bead} + R_{core} \\
 k_{core} &= +D \text{ if } |x_1 - x_2| < R_{bead} + R_{core}
 \end{aligned}$$

Where  $D \approx 50 \times C$