

$$E_{pinning} = E_{(1)} - E_{(2)}$$

(1)



vortex-pinned

uniform

-

(2)



nucleus



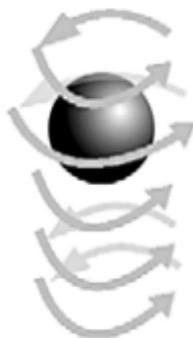
vortex

$$E_{pinning} = E_{nuc}^{vor} - E_{unif}^{vor}$$

$$E_{nuc}^{vor} =$$

(a)

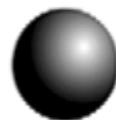
vortex-pinned



-

(b)

nucleus



$$E_{unif}^{vor} =$$

(c)

vortex



-

(d)

uniform

