①

$$\mathbb{E}\left[\cancel{N_\varepsilon\, \mathbb{1}\left[\left| \frac{\nabla^2 X(t_0)}{X(t_0)} + \frac{\Lambda(t_0)}{\sigma^2} \right| > \eta ,\ f(t_0) > v \right]} \right]$$

$$\mathbb{E}\left[N_\varepsilon\, \mathbb{1}[A(t_0)] \right]$$

$$\leq \mathbb{E}\left[\int_{B_r(t_0)} \delta_\varepsilon(\nabla X(t))\, |\det \nabla^2 X(t)|\, dt\ \mathbb{1}[A(t_0)] \right.$$

$$\left. \times\, \cancel{\mathbb{1}\left[\left| \frac{\nabla^2 X(t_0)}{X(t_0)} + \frac{\Lambda(t_0)}{\sigma^2} \right| > \eta ,\ f(t_0) > v \right]} \right]$$

$$\cancel{\leq \mathbb{E}\left[\int_{B_r(t_0)} \delta_\varepsilon(X(t))\, |\det \nabla^2 X(t_0)|\, dt\ \mathbb{1}[A(t_0)] \right.}$$

$$\cancel{+ \int_{B_r(t_0)} \delta_\varepsilon(X(t)) \left(|\det \nabla^2 X(t_0) - \det \nabla^2 X(t)| \right.}$$

$$\cancel{\left. \mathbb{1}[A(t_0)] \right]}$$

$\boxed{500/33}$ $\boxed{10}$ $\sim \boxed{16 \text{ hours}}$

because of finiteness etc

$$= \int_{B_r(t_0)} \mathbb{E}\left[\delta_\varepsilon(\nabla X(t))\, |\det \nabla^2 X(t)| \right\} \mathbb{1}[A(t_0)]]$$

$$\leq \int_{B_r(t_0)} \mathbb{E}\left[\delta_\varepsilon(\nabla X(t))\, |\det \nabla^2 X(t_0)| \right\} \mathbb{1}[A(t_0)].$$

$$+ \mathbb{E}\left[\delta_\varepsilon(\nabla X(t))\, |\det \nabla^2 X(t) - \det \nabla^2 X(t_0)| \right.$$

zero off $A(t_0)$ ~~now~~