Note on Evans' Book

Ruosen Gao

- Divergence form and energy methods vs non-divergence form and maximum principle techniques. (p312)
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$$\begin{aligned} L \text{ uniformly elliptic} &\iff \exists \theta > 0, \forall x, \xi, \sum_{i,j} a^{ij}(x)\xi_i\xi_j - \theta|\xi| \geq 0 \\ &\iff \exists \theta > 0, \forall x, \xi, \xi^T(A(x) - \theta I)\xi \geq 0 \\ &\iff \exists \theta > 0, \forall x, A(x) - \theta I \text{ non-negative definite} \\ &\iff \exists \theta > 0, \forall x, A(x) \text{ positive definite with eigenvalues} \geq \theta \end{aligned}$$

- Elliptic equations and stochastic processes both offer insights into the physical phenomenon – diffusion process. (p313)
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