Stochastic Quantization

Summer Graduate School, July 1-12, 2024, MSRI/SLMath

Linear theory of Laplace equation and heat equation
Evans, "Partial differential equations" Section 2.2 and 2.3.

Finite dimensional Gaussian measures:
Oksendal, "Stochastic Differential Equations" Appendix A.

Infinite dimensional Gaussian measures.
White noise.
Da Prato "An Introduction to Infinite-Dimensional Analysis" Chapter 1.

Brownian motion.
Stochastic differential equations with additive Brownian noise.
Oksendal, "Stochastic Differential Equations" Section 2, 3, 4, 5.

Schwarz distributions. Fourier transform on a discrete lattice and on Euclidean space.
Evans, "Partial differential equations": Section 4.3.1.
Rudin, "Functional analysis (2nd ed)" Section 6 and 7

Weak convergence of probability measures. Tightness of probability measures.
Durrett, "Probability: theory and examples": Section 3.2, 3.3.

Bibliography by Hao Shen, April 24, 2024.