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Elton P Hsu* (ehsu@math.northwestern.edu), Department of Mathematics, Northwestern University, 2033 Sheridan Road, Evanston, IL 60208. *The Parisi Formula for Spin Glass Models via Stochastic Analysis.*

The Parisi formula is a fundamental result in spin glass theory. In this talk I will present a new approach to the proof of Guerra's identity, from which the upper bound in the Parisi formula follows immediately. Among the techniques from stochastic analysis we will use include path space integration parts for the Wiener measure (Brownian motion), the Girsanov transform exponential martingales). We hope that this approach will shed some lights on the much more difficult lower bound in the Parisi formula. The basic ideas of this new approach will be outlined the first, and then some details of the proof will be discussed if time permits. (Received February 04, 2020)