# Stochastic quantization of the three dimensional polymer measure

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We consider the Edwards model which describes a self-repulsive polymer. It is formally defined by

$$\nu_\lambda(\mathrm{d}\omega) = \frac{1}{Z_\lambda} \exp\left(-\lambda J(\omega)\right) \nu_0(\mathrm{d}\omega)$$

for $\lambda > 0$, where $\nu_0$ denotes the Wiener measure, $J(\omega) = \int_0^1 \int_0^1 \delta_0(\omega_t - \omega_s)\mathrm{d}s\mathrm{d}t$ is a self-intersection local time, and $Z_\lambda$ is a normalizing constant. $\nu_\lambda$ has been mathematically constructed for $d \leq 3$ in 1980s and it is known that $\nu_\lambda$ is singular with respect to $\nu_0$ for $\lambda > 0$ when $d = 3$.

The stochastic quantization of $\nu_\lambda$ for $d = 2$ was studied by Albeverio, Hu, Röckner, Zhou but the case for $d = 3$ has been left. We talk about the stochastic quantization of $\nu_\lambda$ for $d = 3$ and mutually absolute continuity of $\nu_\lambda$ and $\nu_\lambda \circ \tau_h^{-1}$, where $\tau_h : \omega \mapsto \omega + h$ is a translation of a sample path $\omega$ by a continuous function $h$.

This talk is based on the joint work with Sergio Albeverio, Seiichiro Kusuoka, Song Liang.