1042-58-101 **Naotaka Kajino*** (kajino.n@acs.i.kyoto-u.ac.jp), Sub-Department of Applied Analysis, Graduate School of Informatics, Kyoto Univ., Yoshida-honmachi, Sakyo-ku, Kyoto, Kyoto 606-8501, Japan. *Weyl type spectral asymptotics for Laplacians on Sierpinski carpets.*

Let $\{\lambda_n\}_{n\geq 1}$ be the eigenvalues of the Laplacian associated with the Brownian motion on a generalized (i.e. possibly higher dimensional) Sierpinski carpet, and let $Z(t) := \sum_{n=1}^{\infty} e^{-\lambda_n t}$, $t > 0$ (called the *partition function* of the Laplacian). B. M. Hambly has shown that there exists a $(0, \infty)$-valued periodic continuous function G such that, as $t \downarrow 0$,

$$Z(t) - t^{-d_f/d_w} G(\log t^{-1}) = o(t^{-d_f/d_w}),$$

where d_f (resp. d_w) is the Hausdorff dimension (resp. walk dimension) of the carpet.

In this talk I will present the following two results closely related to Hambly's result above:

(1) $Z(t) - t^{-d_f/d_w} G(\log t^{-1})$ in the above formula also admits an asymptotic behavior of similar form (giving an affirmative answer to Hambly's conjecture).

(2) Even if we consider a time change (with respect to a self-similar measure) of the original Brownian motion on the carpet, the associated partition function admits a similar asymptotic behavior as long as the corresponding heat kernel is subject to the Sub-Gaussian upper bound.

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