İSTANBUL ANALYSIS SEMINARS

The 2/5-Rule for the Shift of Critical Temperature in the Superconductivity Toy Model

Boris Mityagin
Ohio State University

Mathematical questions coming from [KC] P. Krotkov, A. Chubukov, Theory of non-Fermi liquid and pairing in electron-doped cuprates, Physical Review B 74, 014509 (2006) are about asymptotics (a goes to zero) of the highest eigenvalue $E(a)$ of an integral operator with an anisotropic kernel

$$K(x,y) = (\pi * (1 + (x-y)^2 + a^2 * (x^2+y^2)^2))^{(-1)}$$

in the L^2-space of odd functions. We show that $E(a) = 1 - g(a)$, $1/2a^{(2/5)} < g(a) < 3a^{(2/5)}$ for small enough $a > 0$. We'll discuss a more general conjecture (about asymptotics of ALL eigenvalues) inspired by H. Widom's results c. 1960 about integral operators with translation invariant kernels.

Date and Time: December 1, 2006, 15:45

Place: Sabancı Üniversitesi, Karaköy İletişim Merkezi, Bankalar Caddesi No:2 Karaköy İstanbul

Please post

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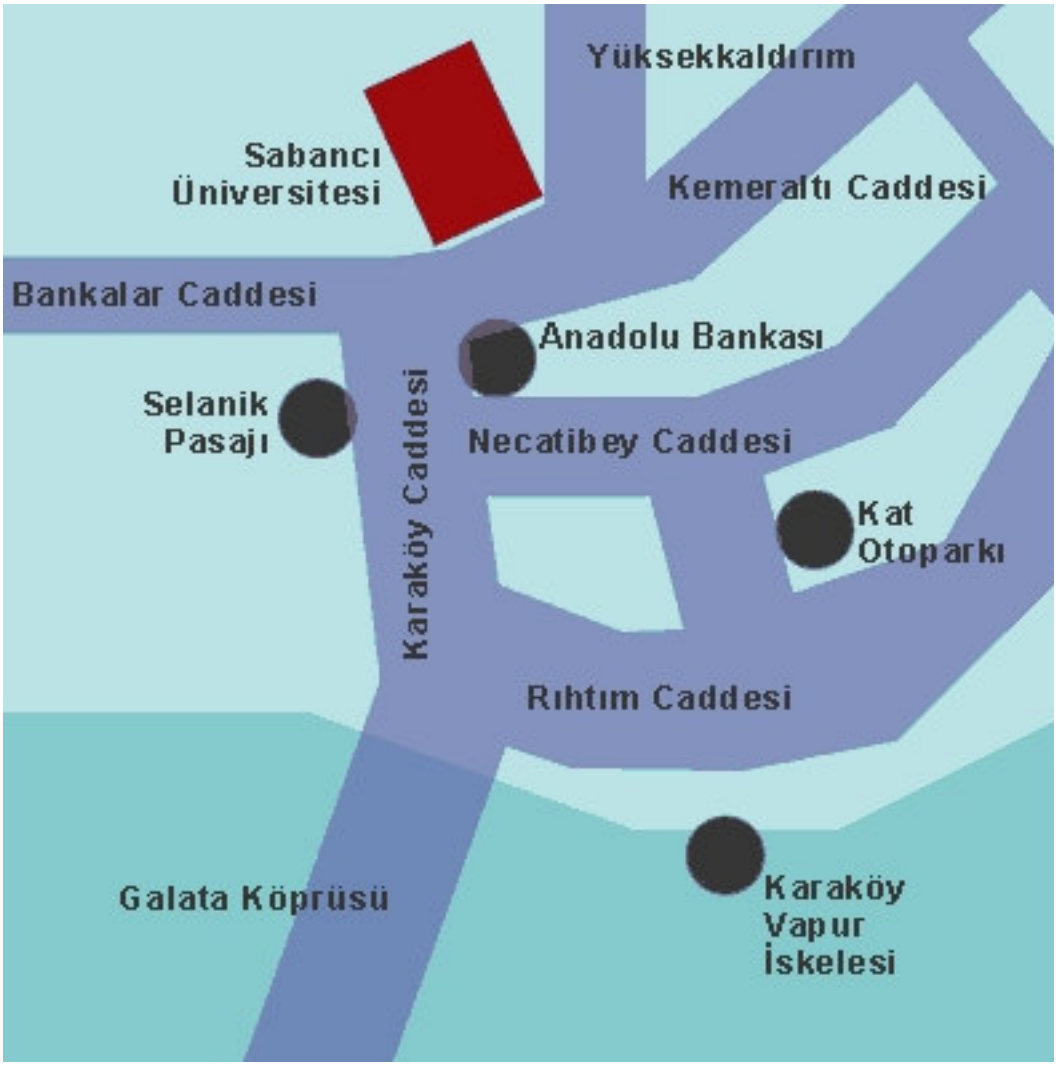

Sketch of Karaköy İletişim Merkezi