NCTS Distinguished Lecture

The Two-dimensional Coulomb Plasma

Speaker:

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For the two-dimensional one-component Coulomb plasma, we derive an asymptotic expansion of the free energy up to order N, the number of particles of the gas, with an effective error bound $N^{1-\kappa}$ for some constant $\kappa > 0$.

This expansion is based on approximating the Coulomb gas by a quasi-free Yukawa gas.

Further, we prove that the fluctuations of the linear statistics are given by a Gaussian free field at any positive temperature.

姚鴻澤教授1981年畢業於臺灣大學數學系，2014年獲選為臺大傑出校友，目前也是 NCTS Distinguished Scholar。

他是數學物理、分析與機率論領域的領導者，研究成果影響了機率論、隨機過程、非平衡態統計物理和量子力學等，為當今世上影響層面最深最廣的數學家。姚鴻澤教授曾獲龐加萊獎與麥克阿瑟獎，也是美國國家科學院、美國藝術及科學院與中研院之院士。

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