2014年度 第2回 中央大学物理学科教室談話会

講演者： **Ivan Dornic 氏**（CEA Saclay, France）

題　目：
Brownian motion in time-dependent potentials and Painlevé transcendents: a few examples of stochastic integrability

日　時： ２０１４年６月３０日（月）１６：２０〜１７：５０

場　所：中央大学後楽園キャンパス３号館３階３３０８号教室
　　　　（〒112-8551　文京区春日１‐１３‐２７；東京メトロ丸の内線,
　　　　南北線「後楽園駅」または都営地下鉄大江戸線, 三田線「春日駅」
　　　　から徒歩５分）

概　要：We show how the determination of the distribution of a certain imaginary exponential of Brownian motion — a stylized model of phase-noise — can be recast in terms of the first-passage properties of a particle diffusing in an explicitely time-dependent potential. We uncover that the latter involves the particular Sine-Gordon Painlevé III transcendent. This representation parallels a characterization of the celebrated Tracy-Widom distribution, and vindicates a recently proposed general scheme linking non-stationary Schrödinger (or Fokker-Planck) equations to Painlevé equations. Another salient example of this correspondence is provided by the critical scaling correlations of the two-dimensional Ising model, which are associated to the Sinh-Gordon Painlevé III.

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