

## 27th Rencontres ITZYKSON : Fluctuations far from Equilibrium



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### **Hiroki MORIYA - Current fluctuation of diffusive models and classical integrability**

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Over the last two decades, the macroscopic fluctuation theory has been developed and applied to various diffusive models to study large-scale fluctuations of physical quantities such as current. The equations of motion that the theory induces are in general quite difficult to solve under the appropriate mixed time boundary conditions. Fortunately, as long as the equations of motion belong to a certain class, the inverse scattering method (ISM) could be a powerful tool to solve them. Indeed, the current large deviation of the symmetric simple exclusion process (SEP) can be derived via the ISM when the initial state can fluctuate. This framework also allows us to study the current fluctuation of some diffusive models starting from the fixed initial condition. In particular, we discuss how to derive the higher cumulants of SEP.

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