

21COE 物質階層融合科学セミナー
物性コロキウム

日時：7月21日(木) 16:30 - 18:00

場所：理学部 理学総合棟 745号室(大学院講義室1)

講師：Onuttom Narayan (Dept of Physics, University of California)

題目：Energy transport in one dimension

要旨： In many one dimensional models, the thermal conductivity is found to be divergent as the system size L becomes large. Using a hydrodynamic approach, a renormalization group analysis predicts that the thermal conductivity should diverge as $L^{1/3}$ for all momentum conserving systems. Numerical simulations confirm this prediction, but show surprising subtleties in applying the Kubo formula: the correlation function related to the thermal conductivity scales as $L^{1/3}$ or $L^{1/2}$ depending on the boundary conditions. Such sensitivity to boundary conditions should be seen more generally whenever transport coefficients are singular. Numerical simulations will also be presented for energy transport between reservoirs not in thermal equilibrium; it will be shown that is possible to transport energy between identical nonequilibrium reservoirs with a suitably chosen connecting pipe. This will be related to nonreciprocity in nonlinear wave transmission, for which an exact identity will be obtained.

連絡先： 倉本 義夫 (795-6435)

16:15 よりコーヒー、紅茶、お菓子を用意します。

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