Contribution Title:        PERSPECTIVES IN MATHEMATICAL PHYSICS
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Invited speaker:        Topical session
YRS seminar:        NO

I will describe some important problems in theoretical physics and illustrate in which way mathematical physics has contributed to progress in solving them. Among such problems are general aspects of quantum theory and quantum field theory, the fundamental laws of thermodynamics, the quantum theory of open systems and transport theory, etc. Special emphasis will be placed on problems related to quantum Brownian motion and quantum friction.