INVITO AL COLLOQUIO DI MATEMATICA

Venerdì 16 novembre 2007 parlerà *Sergey Sekatskii* (Laboratoire de Physique de la Matière Vivante, IPMC, BSP, EPFL Lausanne) sul tema

On the Hamiltonian whose spectrum coincides with the set of primes

Abstract

(The problem of construction of a simple one - dimensional Hamiltonian $H = -\dfrac{d^2}{dx^2} + V(x)$ whose spectrum coincides with the set of primes is considered .We note that quasi classically a Hamiltonian whose spectrum has the same counting function as that of the primes in the leading order (i.e. integral logarithm $\pi(N) \cong li(N)$) can be constructed with the function $V(x)$ whose inverse is asymptotically given by $x \cong li(V^{1/2})$. Hamiltonians, whose spectra coincide with the first 1-1000 primes are constructed numerically and their fractal structure is revealed. A number of related problems (construction of Hamiltonians generating the zeroes of Riemann Z-function, logarithms of integers, etc.) will be briefly discussed, as well as my understanding how this approach could be used and some comments on the recent attempts to prove the Riemann hypothesis in a similar way.

Come sempre, il luogo d'incontro è la sede del CERFIM, a Locarno ,di fronte al *Rivellino* in via F. Rusca 1, alle 18.00 .
Con i più cordiali saluti del CERFIM.