1077-35-769 **Gigliola Staffilani*** (gigliola@math.mit.edu). *Dispersive equations and their role beyond PDE.*

Arguably the star in the family of dispersive equations is the Schrödinger equation. Among many mathematicians and physicists it is regarded as fundamental, in particular to understand complex phenomena in quantum mechanics.

But not many people may know that this equation, when defined on tori for example, has a very reach and more abstract structure that touches several fields of mathematics, among which analytic number theory, symplectic geometry, probability and dynamical systems.

In this talk I will illustrate in the simplest possible way how all these different aspects of a unique equation have a life of their own while interacting with each other to assemble a beautiful and subtle picture. This picture is not yet completely well understood and many questions and open problems are there ready to be solved by a new generation of mathematicians. (Received September 12, 2011)