The modern theory of integrable systems was born in the late 60s of last century with the discovery of some remarkable properties of the Korteweg-de Vries (KdV) equation. Among these, the existence of a class of traveling wave type solutions, known as "solitons", and (from a more theoretical point of view) the existence of an integration method, known as "the inverse scattering method", which reduces the Cauchy problem for the KdV equation to the problem of reconstructing the potential of the Schrödinger equation from the scattering data.

Subsequently, the KdV equation became the prototype of a class of nonlinear partial differential equations, called soliton equations, with similar features. Moreover, it was soon realized that soliton equations can be considered as the infinite-dimensional version of classical integrable Hamiltonian systems.

In 1978, Franco Magri discovered another remarkable property of KdV equation: the existence of a bi-Hamiltonian structure, that is, the fact that this equation can be written in two different (and compatible, in a suitable sense) ways as Hamiltonian equation. This discovery turned out to be crucial, since the existence of such structure is often behind the integrability property, also in the finite dimensional setting.

Later the theory of integrable systems had a rapid growth and today is a branch of mathematical physics characterized by multiple contacts with other areas of Mathematics and Physics. In Mathematics, for instance, it is related with the theory of Lie algebras, differential and algebraic geometry, Frobenius manifolds and enumerative geometry, random matrix theory, etc… just to mention a few of them.

This event organized on the occasion of the seventieth birthday of Franco Magri, aims to provide a broad overview on the current state of the theory of integrable systems in its various ramifications.