

Nonlinear partial differential equations : the Abel Symposium 2010

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Abstrak

The topic of the 2010 Abel Symposium, hosted at the Norwegian Academy of Science and Letters, Oslo, was Nonlinear Partial Differential Equations, the study of which is of fundamental importance in mathematics and in almost all of natural sciences, economics, and engineering.

This area of mathematics is currently in the midst of an unprecedented development worldwide. Differential equations are used to model phenomena of increasing complexity, and in areas that have traditionally been outside the realm of mathematics. New analytical tools and numerical methods are dramatically improving our understanding of nonlinear models. Nonlinearity gives rise to novel effects reflected in the appearance of shock waves, turbulence, material defects, etc., and offers challenging mathematical problems. On the other hand, new mathematical developments provide new insight in many applications.