Mathematical models of hysteresis

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ABSTRACT:
Hysteretic behaviour is an important feature of many processes in science and technology. In their mathematical treatment, the hysteresis aspect appears in rather diverse ways.

In this talk, we single out so-called rate-independent processes which, in some sense, contain the essence of hysteresis.

We present the basic mathematical models for the scalar and for the vector case, and discuss some of their properties, both in isolation and as elements of a dynamical system.

We will also address some issues related to the control of such systems.