

The Mathematics and Applications of Hysteresis

A talk by

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**Thursday 7 December
starting at 7.30 pm**

Lecture Theatre B125, Main Building
University of Derby, Kedleston Road Campus
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Abstract

The actions of people often depend not only on their current state of mind, but also on their recent history. Many naturally occurring systems behave in a similar way. Hysteresis is the dependence of a system on its particular history and it can be either beneficial or problematic, depending on how it is manifested.

Systems exhibiting hysteresis are nonlinear, making them mathematically challenging to model. By combining a system of relay hysterons, we can construct the discrete Preisach model which, in its continuous limit, can be used to represent hysteresis in some physical systems.

We will explore the simple definition but far reaching applications of hysteresis. From elasticity to population dynamics, there are a number of fascinating examples where hysteresis can occur naturally. In examples such as control systems, we will see how we can use hysteresis to our advantage.

No charge is made to attend meetings, non-IMA members are welcome

The talk is coordinated by the East Midlands Branch Secretary,
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