

BOURDIEU IN THE PHYSICS LAB: TESTING THE CONCEPT OF HYSTERESIS

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Abstract

This project investigated the relationship between the concept of hysteresis in physics and in Bourdieu's sociology. We analyzed concepts that permeate the natural and human sciences, exploring their mutual implications. The research also reflected on the relationship between part and whole in physical systems and society.

Key Words: HYSTERESIS, HABITUS, CHAMP.

Introduction

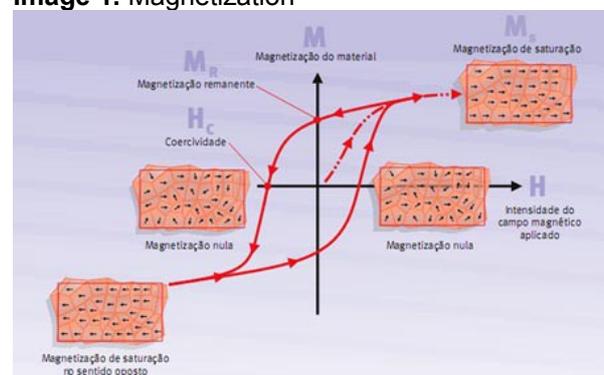
For physicists, hysteresis is a natural phenomenon. Bourdieu, in contrast, builds an evaluative concept of hysteresis, which indicates an inadequacy of certain practices and provisions to certain social fields. The principal objective of this research is to explore the relationship between the use of the term "hysteresis" in physics and in Bourdieu's sociology, in order to promote a closer relationship between the social sciences and natural sciences starting from a research partnership between IFCH and IFGW.

Results and Discussion

There are 3 classes of concepts that underlie this research. There are those that involve the two areas, physics and sociology, but that change when they go from one to another, or that have distinct meanings - behavior, individual, global, collective, group interactions, crowd, field, hysteresis, entity, part, whole; Then there are some specific concepts of sociology, as habitus and social practice; and finally specific concepts of physics like hysteron.

Methodology: (a) literature on Bourdieu's concepts of "habitus", "field" and "hysteresis"; (b) interviews with researchers of Materials and Low Temperature Laboratory (LMBT) of the Institute of Physics Gleb Wataghin (IFGW) of Unicamp; (c) texts study addressing the relationship between part and entire in physical systems featuring magnetic hysteresis.

Image 1. Magnetization



Fonte: Hyper Physics

Conclusions

We discovered some similarities between the concepts, as the notion of "backwardness" and the "memory effect". However, there is a substantial difference that affects the analogy made by Bourdieu that guides the following fact: the hysteresis in physics occurs due to the interaction between the parties, while in sociology hysteresis, being the habitus, is extremely individual and arises when it comes into contact with a non-compliant field (part x whole)

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