BOOK OF ABSTRACTS

THE VALUE OF SCIENTIFIC REPRESENTATION
CLASSIC ISSUES AND CONTEMPORARY CHALLENGES

MARY B. HESSE'S "NEW EPISTEMOLOGY"
PRINCIPLES AND LEGACY

KEYNOTE SPEAKERS
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SESSION 1

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Similarity and representation: an ongoing dialogue

Although similarity and analogue models have been widely utilized in various scientific fields since the 18th century, the concept of similarity was somehow neglected in epistemological issues of the Philosophy of Science until the late 20th century, despite that it is a core mechanism that allows experimentation. Several approaches to analogue models have been provided by philosophers in recent decades. However, the wide use of the concept of similarity during the application of analogue models requires further discussion on the role of similarity in the representation of existing physical systems through analogue models, and on the criteria on which the verification of a specific similarity between an analogue model and a system in the study should be based. Thus, this study aims to examine the relationship between similarity and representation and the value of scientific representation throughout the application of analogue models. To address this point, we examine two significant approaches to the concepts of similarity, analogy, and scientific model and the relationship among similarity, representation, and analogue models. Firstly, we examine the theory of Mary B. Hesse concerning the role of analogy during the application of scientific models. Moreover, we study the view of Susan G. Sterrett, who identified similarity as the basic method of analogue models. Also, a new perception of the concept of similarity is proposed here, being considered as the core mechanism allowing the transfer of knowledge between different scales of the same phenomenon (internal similarity) or among different phenomena or systems (external similarity). Finally, we highlight that the validity of this technique can be ensured if the similarity between two systems is verified, based on strict, scientific, and objective criteria rather than empirical notions.