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What means that the book of nature is written in mathematical characters?

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In his work *Il Saggiatore*, Galileo claimed that the book of nature is written in mathematical characters. What does this statement exactly mean? It is possible to offer different answers: 1) one could think that Galileo had a strong Platonic view. This means that a mathematical world separated from the phenomenal one exists and that the physical laws are an empirical transcription of the relations existing in this world; 2) a weak Platonic interpretation is also possible: mathematics does not exist in a separated world. It is the nomological structure of our universe. It is inherent to the universe itself; 3) an operational interpretation could be considered: mathematics is the best method we have to measure the objects and to formulate relations among them. It is an unavoidable means for any physical research, but we cannot assume a definitive position as to the relations between mathematics and structure of the world. Simply, mathematics is the best available instrument. In my talk, I will try to clarify the relation Galileo saw between mathematics and physics in the light of classical works as those by Koyré, Geymonat and Drake as well as relying upon more recent studies as Boccaletti's and mine.

Primary author: BUSSOTTI, Paolo (University of Udine)

Presenter: BUSSOTTI, Paolo (University of Udine)

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