

ABSTRACT

Title: A Comparative Study Of al-Bīrūnī's And Newton's Philosophies
of Mathematics

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The mathematization of nature has always been an important theme in the development of Islamic science and Western science. The flowering of Islamic science is closely related to the development of Islamic mathematics. Likewise, mathematics is extremely important to Western science to the extent that mathematics is dubbed the 'Queen of science'.

Underlying the development of both mathematics is its philosophy. In this dissertation, we have decided to examine the mathematical philosophy of al-Bīrūnī (973-1051 A.D.) and Isaac Newton (1642-1727 A.D.). We have chosen to investigate three aspects of their philosophy related to their concept of the mathematization of nature, namely; their concepts of nature, God and religion since these three aspects are the 'essence' of Islam and Christianity in the most general sense of the word. In more specific term, we will examine their view of the relationship between nature, science and religion, their concept of mathematization of nature and their view of mathematical knowledge. The main thesis is that there are more similarities than differences in their philosophy of mathematics with regard to the three aspects. Discussions are made in this dissertation in so far as they could illustrate the main thesis. An attempt is made towards the end to construct a 'shared philosophy of mathematics' based on these similarities.