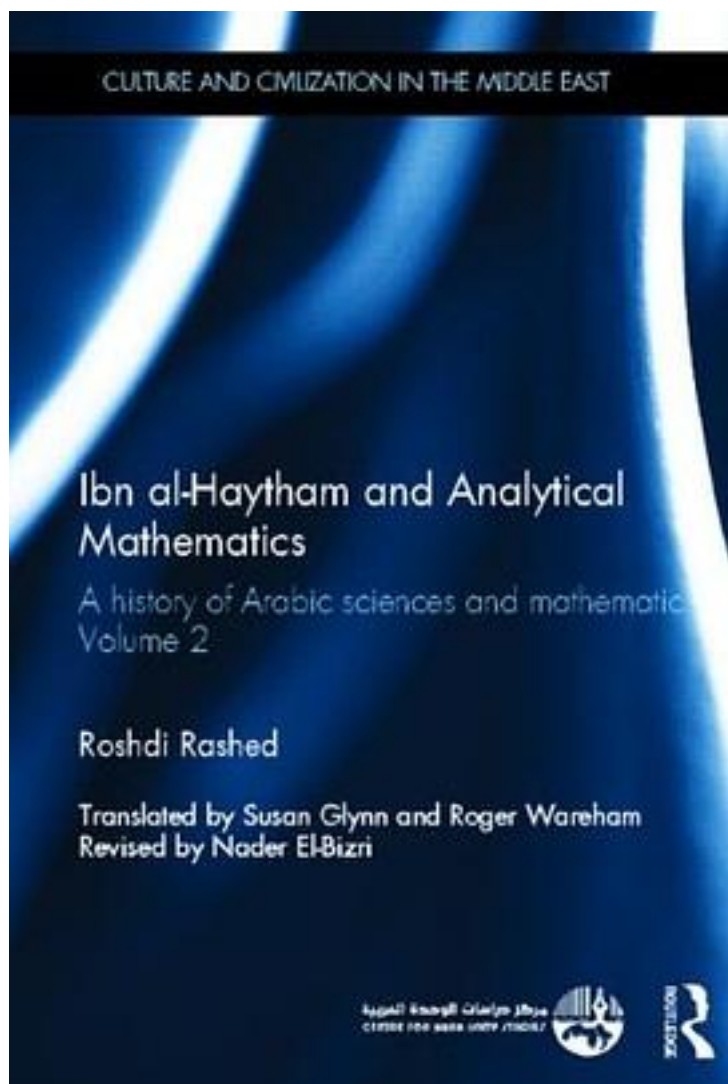


Ibn Al-Haytham and Analytical Mathematics



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This volume provides a unique primary source on the history and philosophy of mathematics and the exact sciences in the mediaeval Arab world. The second of five comprehensive volumes, this book offers a detailed exploration of Arabic mathematics in the eleventh century as embodied in the legacy of the celebrated polymath al-Hasan ibn al-Haytham. Extensive analyses and annotations from the eminent scholar, Roshdi Rashed, support a number of key Arabic texts from Ibn al-Haytham's treatises in infinitesimal mathematics, translated here into English for the first time. Rashed shows how Ibn al-Haytham's works demonstrate a remarkable mathematical competence in mathematical subjects like the quadrature of the circle and of lunes, the calculation of the volumes of paraboloids, the problem of isoperimetric plane figures and solid figures with equal surface areas, along with the extraction of square and cubic roots. The present text is complemented by the first volume of A History of Arabic Sciences and Mathematics, which focused on founding figures and commentators in the ninth and tenth centuries Archimedean-Apollonian mathematical 'School of Baghdad'. This constellation of works illustrates the historical and epistemological development of 'infinitesimal mathematics' as it became clearly articulated in the oeuvre of Ibn al-Haytham. Contributing to a more informed and balanced understanding of the internal currents of the history of mathematics and the exact sciences in Islam, and of its adaptive interpretation and assimilation in the European context, this fundamental text will appeal to historians of ideas, epistemologists and mathematicians at the most advanced levels of research.

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