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BOSCOVICH ON ORBIT DETERMINATION FOR COMETS AND PLANETS (1746-1785)

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The problem of comet orbit determination has been one of the most important challenges in early modern astronomy since Newton's Principia at least, but came to an apex in the mid-eighteenth century, when many comets were being observed and a plurality of methods for calculating their paths with increasing precision emerged. The present paper studies Ruggiero Boscovich's contribution to this field from the early 1740s until his 1782 solution for Uranus orbit. He started with a modified form of Chéseaux's method of cometary path determination (*Dissertatio de cometis*, 1746), presented a more sophisticated version in the early 1770s (*De orbitis cometarum determinandis*, 1774), and finally advanced a method that could be applied to cometary and planetary paths as well (*Teoria del nuovo astro osservato prima in Inghilterra*, 1782; *Opera pertinentia ad opticam et astronomiam*, III, 1785). I will show that (a) Boscovich was aware of the peculiarities of the problem of determining the orbit of a comet compared to that of a planet and the advancements made by other astronomers, but (b) at a certain point he changed his initial approach and strove for a method of growing generality. I will claim that this feature was the most important merit of his last paper, making of it one of the most significant contributions of his time —despite some flaws and the limits of Boscovich's mainly geometric style of orbit determination.

Primary author: GUZZARDI, Luca (Università degli Studi di Milano)

Presenter: GUZZARDI, Luca (Università degli Studi di Milano)

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