

Department of Mathematics and Statistics Colloquium

On the Shoulders of Giants Copernicus, Galileo and Kepler

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Abstract: From an historical perspective, the Apollo moon landing of July 20, 1969, could be viewed as the crowning achievement of classical physics, which sprung into existence in 1687 with the publication of Isaac Newtons Principia Mathematica, universally recognized as the greatest contribution to science by a single individual in the history of the human race. More than two-hundred years later, in 1901, the great German physicist Ernst Mach cast Newtons achievement in perspective: All that has been accomplished in mechanics since his day has been a deductive, formal and mathematical development of mechanics on the basis of Newtons laws. Mathematician and historian of science Jacob Bronowski further elucidated Newtons place in history: Newtons was the new mind that saw the crucial step from the descriptions [of] the past to the dynamic, causal explanations of the future. In 1675, Newton wrote humbly of his accomplishments to eminent scientist Robert Hooke, If I have seen further, it is by standing on the shoulders of giants. He did not name those giants, but almost certainly they included Nicolaus Copernicus, Galileo Galilei, and Johannes Kepler. This historical talk will trace the motivations and contributions of these giants to Newtonian mechanics.

**Monday, April 2 at 3:45 in Roop 103
refreshments at 3:30**