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Kepler's astronomy: an interplay between kinematics and dynamics

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The fundamental elements of Kepler's dynamics will be explained. They were offered by Kepler in *Astronomia Nova* and *Epitomae Astronomiae Copernicanae*. Afterwards, I will analyse the connections among such elements and the first two Kepler laws. For, an interesting conceptual and historiographic problem exists: is it possible that a "wrong" dynamics is the basis of a "correct" kinematics? Or, rather, Kepler developed independently the kinematical and the dynamical aspects and, after that, tried to arrive at a synthesis in order to offer a complete physical theory of the planetary movements? In the final part of my talk, I will try to provide an answer to this profound and fascinating questions.

Essential bibliography

Kepler, J. (1937–2012). *Gesammelte Werke*, Van Dyck W,

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Koyré, A. (1973). *The Astronomical Revolution: Copernicus – Kepler – Borelli*. London. Methuen. Ithaca (NY): Cornell University Press. First edition 1961.

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Stephenson, B. (1987). *Kepler's Physical Astronomy*. New York - Berlin - Heidelberg - London - Paris - Tokyo: Springer.

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