

# ERASMUS PLUS

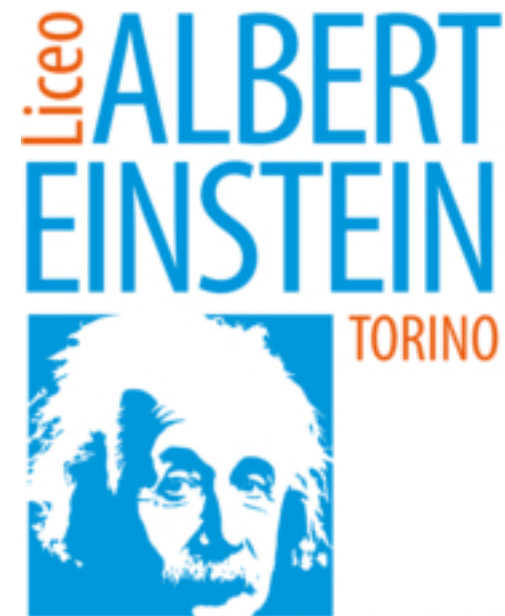
PROJECT: MASCOTTE

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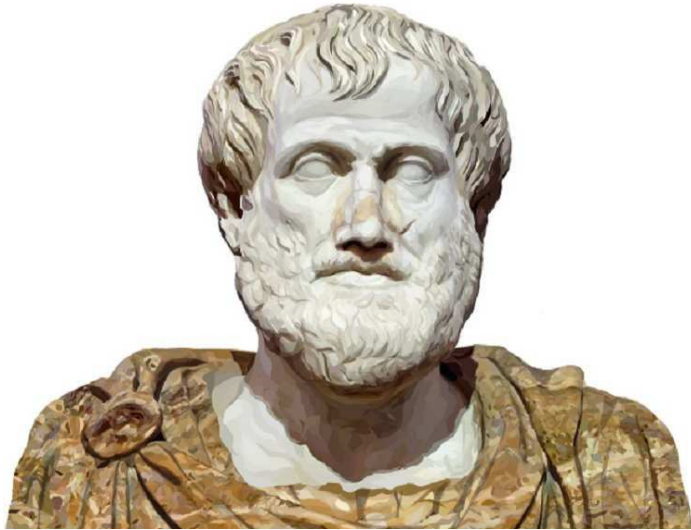


# The Astronomical Revolution

The scientific revolution was mainly an astronomical revolution, that is to say a radical reconsideration of the position of heavenly bodies (Sun, Moon, planets and stars) and their motion.



## **Aristotele (IV sec b. C)**



The Aristotelian model was based on a complex combination of circles and spheres; it was a system of solid homocentric spheres with the same center of rotation (coinciding with the center of the Earth) which slide one over the other dragging the planets with them.

## **Ptolomeo (II sec b.C)**



In the Ptolemaic system the planets did not move regularly in circles, but the combination of various circular motions was involved.

In particular the orbit was called the epicycle.

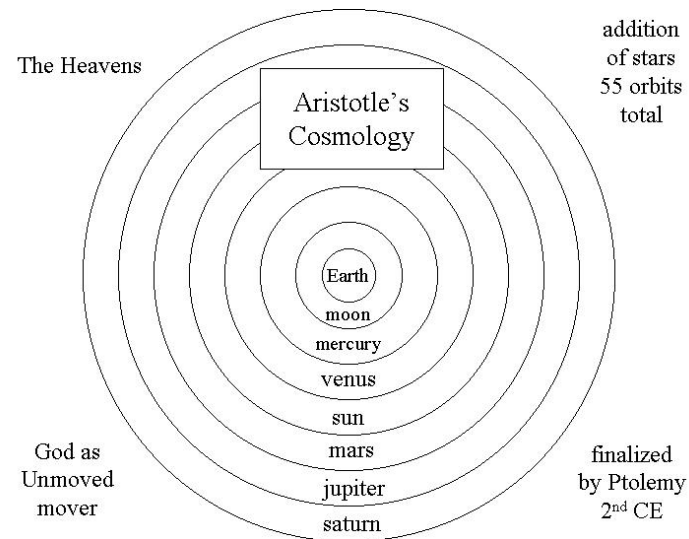
# Aristotele and Ptolomeo

## In Common

- The models were both geostatic;
- Motion was essentially circular ;

## Differences

- Once model was physic (Aristotelian);
- Once was a geometrical model (Ptolemaic);

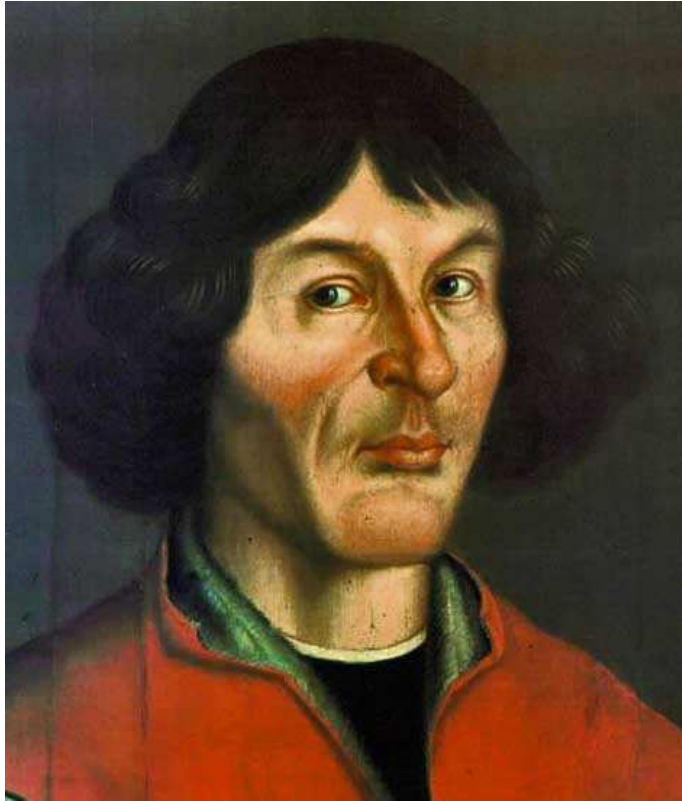


The background of the slide is a reproduction of the painting 'The Starry Night' by J.M.W. Turner. It features a dark, swirling night sky with numerous bright, glowing stars and a prominent crescent moon. The colors are primarily deep blues, yellows, and whites, with some darker tones in the lower portion of the image. The overall style is expressive and textured, characteristic of the Impressionist movement.

# The ancient cosmological Paradigm

1. The Universe is finite and spherical in extent bounded by the sky of the fixed stars;
2. The Earth is the solid and the fixed center of the Universe, the planets and the stars appear to revolve around the Earth in circular motions;
3. The objects of the sublunary world are made up of four corruptible elements, different from the celestial ones made up of ether;
4. Each motions needs a specific cause.

## **Copernicus (1473-1543)**



He showed, thanks to a series of mathematical calculations, that the Sun was the center of the Universe, as consequence in the heliocentric model the celestial bodies revolved around the Sun.

The Moon rotated around its axis and moved on an epicycle around the Earth.

Copernicus' world was not infinite but it was consider to be wider than in the past.



## **Tycho Brahe (1546-1601)**

In the Tychonic system the Moon and the Sun rotate around the Earth and the planets rotate around the Sun. Around all is a sphere of stars which rotates.

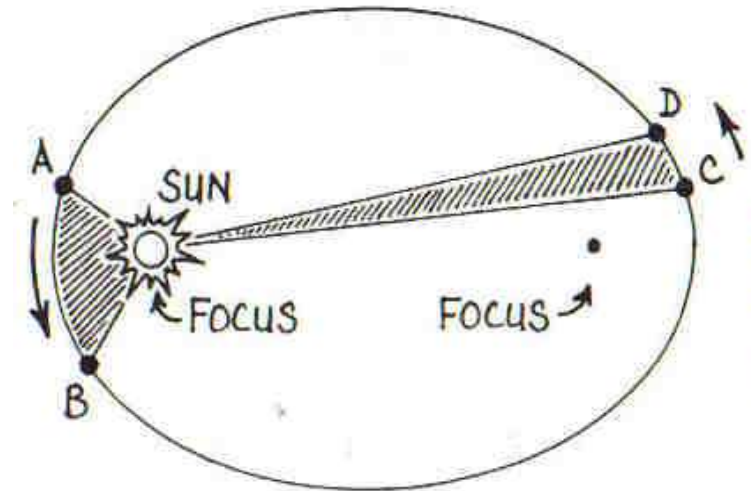


# Kepler's laws

Kepler's laws of planetary motion are free scientific laws describing the motion of the planets around the Sun.

The three Kepler's laws:

1. The orbit of a planet is an ellipse with the Sun at one of the two foci;
2. A line segment joining a planet and the Sun sweeps out equal areas during equal intervals of time;
3. The square of the orbital period of a planet is proportional to the cube of the semi-major axis of its orbit.





**Thank you  
for your  
attention**