



Special Lectures on the Antikythera Mechanism Exhibition

“Studying Solar Eclipses Across Two Millennia: From the Antikythera Mechanism's Eclipse Predictions to Modern Observations of the Solar Corona during totality”

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Abstract. The Antikythera Mechanism is a bronze, gear-driven astronomical time-computing device constructed during the Hellenistic period, around 180 BC. Through an intricate system of gears, axles, shafts, pointers, calibrated scales, and engraved plates, it was capable of calculating time and predicting astronomical phenomena as well as events of social significance. A remarkable portion of the Mechanism was dedicated to the prediction of solar and lunar eclipses, including their classification, magnitude, timing, and directional characteristics. In antiquity, accurately predicting eclipses represented one of the greatest scientific achievements and was regarded as the "*Holy Grail*" of Ancient Astronomy. More than two millennia later, eclipse prediction has become highly accurate, enabling the precise planning of observational campaigns and scientific experiments during total solar eclipses. At the same time, the extremely high temperatures of the solar corona, reaching approximately 1,000,000–3,500,000 K, have made it one of the foremost subjects of modern solar astronomy - its study becoming, in a sense, the "*Holy Grail*" of contemporary solar research.

“Making the Antikythera Mechanism: Ancient Tools Brought Back to Life”

Efthalia Traianou

Heidelberg University

How did ancient craftsmen create something as intricate as the Antikythera Mechanism more than 2,000 years ago? Its tiny gears, holes and carefully shaped parts required remarkable skill, precision and sophisticated tools. Together, we will take a closer look at a functional reconstruction of the Antikythera Mechanism, two reconstructed bow drills and an ancient vertical lathe, based on depictions from ancient Greek pottery and an Egyptian tomb. Finally, we will turn the room into an ancient workshop and try these Archaic and Ptolemaic machine tools with our own hands!

“Celestial Gears: the Exhibition”

Giangiacomo Gandolfi

INAF-OAR

For the first time, the working replica of the Antikythera Mechanism is being exhibited outside Greece and will be on display to the general public in the Italian capital, thanks to the hospitality of the INAF-Rome Astronomical Observatory's Astronomical and Copernican Museum and the collaboration of the FRAME team. A working replica of the Antikythera Mechanism will be on display from 10 October 2026 to 21 April 2027 in two rooms at Villa Mellini, alongside other fascinating reconstructions and objects that are its direct or indirect successors, drawn from the Museum's collections. The exhibition will trace the origins of the artefact, its functioning, the latest theories on its use, and the great tradition of astronomical mechanics that emerged from it – albeit with a very long and difficult-to-explain delay – spreading throughout the Mediterranean and reaching Italy on several occasions. Thus, amidst working models, unexpected mechanical devices, astrolabes, clocks, orreries and ancient volumes, the mysteries of a legendary object, still shrouded in shadow, will finally be unveiled.