

Dear Friends,

**EVENT SCHEDULE (time UT (GMT) - 7),  
Hermosillo time, Arizona time.**

**We invite you to the presentation of the astronomical planetarium clock that is based on the Antikythera mechanism which will take place on **Thursday, June 2, 2022****

**at 4 pm UT (GMT), or 9am Mountain Standard Time, 11 am EST.**

**The duration of the event is one hour.**

**• Venue the Mexican University of Sonora and the Relojes Olvera Company and in Greece at Laskaridis Foundation, 36, 2nd Meratchias street & Akti Moutsopoulou, Piraeus 185 35.**

19:00 opening of the ceremony

19:05 Welcome from Sonora University

19:08 reference in three languages Dr Ezequiel Rodríguez J. (Spanish 4 minutes),

Dr Julio Saucedo M. (English, 4 minutes), Professor Xenophon Moussa (Greek and English, 2 minutes), Professor Anna Lazou (Greek and English, 2 minutes)

19:20 Dance of the Antikythera Mechanism, Mrs. Luisa Castro and a group of dancers from the University of Sonora, Mexico

19:26 presentation of the watch by Mr. Alfredo Carmona (Spanish) and Dr Raúl Pérez-Enríquez (English)

19:38 Astronomy and Democracy, Professor Xenophon Moussa (Greek and English)

19:42 Next stages of construction Mr. Jesús Clemente Olvera, Relojes Olvera III Generation

19:47 Farewell from the Rector of UNISON

19:55 "the dance of the planets" Experimental Dance Group of EKPA Professor Ms. Anna Lazou and a study group of ancient orchestra

20:00 end of ceremony

If you aren't near Piraeus or Hermosillo you can watch online

<https://www.youtube.com/channel/UCQWgQ1Rj1Kvz3avZGUOsHVQ>

and scanning the QR code link image.

If you wish to participate in Piraeus, please send a mail to

[xmoussas@gmail.com](mailto:xmoussas@gmail.com)

We invite you to honor us in the presentation of the new astronomical clock - planetarium, based on our studies of the Antikythera Mechanism (University of Sonora, Relojes Olvera III Generation, University of Athens).

This clock shows continuously the positions of the Sun, Moon (and the phase of the Moon) and planets, predicts eclipses, determines when the Olympic Games will take place, etc.

We present the first fundamental stage of construction on a scale of 1: 1 (called MA1 model) of the Antikythera Monumental Mechanism. The next model (called MAMH) will be ten times larger, will be presented later in the year.

This event is organized with the 120th anniversary of the discovery of the fragments of the Antikythera mechanism at the National Archaeological Museum amongst the findings of a huge ancient shipwreck of the 1st century BC full of Greek treasures that were on their way to Rome. It is also the 120th anniversary of the beginning of the scientific study of this ancient computer and

It was in May 1902, that among the other brass finds in the famous (due to the Mechanism) shipwreck, the fragments of the Antikythera Mechanism stood out for the first time. It was the former Minister of Education that noticed them during his visit to the National Archaeological Museum in Athens. The minister Spyros Stais physicist and mathematician had contributed with a generous state grant to the world's first and most important underwater archaeological research to date. This research continues successfully and today 122 years later with the kind sponsorship of the Aik Foundation. Laskaridis enables the study of the antiquities that are still at the bottom of the sea, some 700 tons of antiquities embedded in gravel and covered with sand waiting for the archaeologists to fill up a new museum with Greek treasures.

The mechanism was retrieved by the Symian diver Elias Stadiatis probably in the spring of 1901 along with other treasures from the huge shipwreck. Spyros Stais in the Museum saw the strange rusty bronze object, this unique strange machine with gears, scales and texts with capital Greek

writing of 150 to 100 BC. This mechanism proved to be the most ancient computer. His studies to which we contribute successfully changed world history, the history of Greece, of astronomy physics, technology, computers, and mathematics.

Initial studies based on the fragments, the machine's inscriptions already from 1902 showed that it was an astronomical device. For the past 120 years, researchers and scientists have conducted studies to understand the object and its functions, including our team, using the most advanced techniques. Using modern non-invasive analysis techniques with CT scans and special 3D photographs we understood several unknown functions and speculated for others. This was made possible by accurately measuring the teeth of the gears, their dimensions and positions, the shafts and axles, the scales, the pointers and the user manual. Based on the findings, it became possible to design and build models that perfectly present the functional capabilities that the Antikythera mechanism is estimated to have had.

The primordial use of the mechanism and any calendric mechanism is mainly the forecast of the weather. At that time humans predict the weather based on accurate calendars and climatic data (eg October and November it rains in Greece, so it is the period to sow the grain). A very important function of the mechanism is to predict the positions of the celestial bodies, the sun, the moon and most likely of the planets. That is, the mechanism was an astronomical clock with a planetarium and a calendar mechanism synchronizing several calendars. The mechanism has a calendar like today and also an accurate Epirotic lunisolar calendar used in northwestern Greece, Epirus and Corfu.

Early last year, contacts were made with the monumental clock company Relojos Olvera III Generación, which was thrilled with the idea of building a monumental version of the device with these features. Throughout 2021 our team manufactures this watch. The team consists of Professors Dr. Ezequiel Rodríguez Jáuregui and Dr. Julio César Saucedo Morales, from Sonora University (UNISON), Dr. Raúl Pérez-Enríquez, researcher, Mr. Jesús Clemente Olvera Reljoes, Director: (ROIIG) and Prof. Xenophon Moussas, from the National & Kapodistrian University of Athens. The team is supported by many members of the enthusiastic working group of Relojos Olvera and the University of Sonora. We are working on the design and construction of a monumental huge version of the MA1, measuring some 4x4x1.8 meters. The purpose is to establish the first of these clocks

in the city of Hermosillo, in the state of Sonora, Mexico and in other parts of the world.

This project has reached maturity and now we present the version of the 1:1 scale model (called MA1).

The presentation is attended by the Rector of the University of Sonora (UNISON), the Academic Secretary General, the Director of Support for Promotion and Dissemination, Professor Anna Lazou of the University of Athens and the signatory.

The presentation begins with a welcome in three languages (Spanish, English and Greek), followed by a presentation of the planetarium astronomical clock based on the Antikythera scale mechanism 1:1 (MA1) that we manufacture in Relojes Olvera III Generacion. Includes two dances inspired by the Antikythera Mechanism, from the University of Sonora and the University of Athens.

Xenophon Moussas

Professor of Space Physics (ret.)

Department of Astrophysics, Astronomy and Mechanics Faculty of Physics  
School of Science National and Kapodistrian University of Athens  
Panepistimiopolis,

GR 15783 Zographos, Athens, Greece mobile +30 6978792891

e-mail: [xmoussas@phys.uoa.gr](mailto:xmoussas@phys.uoa.gr)

e-mail: [xdmoussas@gmail.com](mailto:xdmoussas@gmail.com)

<http://artemis-iv.phys.uoa.gr/>

<http://www.antikythera-mechanism.gr>

cv:

<http://www.antikythera-mechanism.gr/project/team/academic/xenophon-moussas>

<https://scholar.google.gr/citations?hl=el&user=b8aDvyIAAAAJ>

## Boletín de Prensa

CXX Aniversario del Mecanismo de Antikythera El 19 de mayo de 1902 puede considerarse como la fecha en que los vestigios de un instrumento de bronce, rescatados como parte de un Tesoro de un naufragio muy cerca de la Isla de Antikythera en Grecia, fueron mostrados en una sala especial del Museo Nacional de Arqueología de Atenas. Por eso, el día de hoy, a 120 años de ese hecho, la Universidad de Sonora (UNISON), la Nacional & Kapodistriaca Universidad de Atenas (NKUA) y la empresa Relojes Olvera III Generación (ROIIG) deseamos conmemorar al Mecanismo de Antikythera (MA) con la presentación de una réplica del Planetario a escala 1 a 1 (MA1).

En efecto, nuestros investigadores e ingenieros, encabezados por el Profesor Xenophon Moussas (NKUA), los doctores Ezequiel Rodríguez Jáuregui y Julio Saucedo Morales (UNISON) y los ingenieros Alfredo Carmona y Jesús Clemente Olvera Trejo (ROIIG), con la coordinación de Raúl Rubén Pérez-Enríquez (Jubilado UNISON) han venido trabajando desde hace poco más de un año en el proyecto denominado Mecanismo de Antikythera Monumental para Hermosillo (MAMH). El modelo MA1 constituye la finalización de la primera etapa del proyecto cuyo objetivo es el de la construcción de una réplica 10 a 1 del mismo para ser instalado en esta ciudad; específicamente, en las instalaciones del Museo y Biblioteca de la Universidad de Sonora.

El MA se puede entender como la más antigua computadora analógica fabricada por la humanidad que data de alrededor del año 150 a 100 antes de nuestra era. Compuesta por diversos trenes de engranes que calculan los ciclos básicos de los planetas y de la Luna, este máquina podía dar seguimiento a las fases de esta última y al movimiento frente a las constelaciones de los primeros; también, mostraba los movimientos promedio y real del Sol. Otras funciones del mecanismo son: La presentación del ciclo Metónico de la Luna que mediante una barra y una espiral lograba seguirla durante cuatro ciclos de 19 años para completar el ciclo Calípico; y, una espiral para la predicción de eclipses de Sol y de Luna, mediante el ciclo de Saros (hasta tres de ellos).

Con el objeto de dar a conocer a nivel internacional los resultados de esta primera etapa y conseguir patrocinadores para la siguiente, estamos convocando a invitados especiales y al público en general a seguir la ceremonia que hemos denominado "Modelo 1 a 1 del Planetario en el

marco del CXX Aniversario del Mecanismo de Antikythera”; mismo que se llevará a cabo el día 02 de junio, de este 2022, en el auditorio del Centro de las Artes, de la UNISON.

Como parte de dicha conmemoración y con el objeto de que se transmita el significado de reproducir a escala monumental el mecanismo, en el evento se vincularán los aspectos técnicos con los culturales, educativos y cívicos mediante la presentación de un performance de danza denominado “Movimiento Antikythera” y danza del planetas dirigido por la Mtra. Luisa Castro (UNISON) con el apoyo de la Professora Dra. Anna Lazou (Professora de NKUA).

Para presidir la ceremonia de junio 02, hemos invitado a la Dra. María Rita Plancarte Martínez, Rectora de la Universidad de Sonora y a altas autoridades de la NKUA. El evento será simultáneo con la NKUA. Éste se podrá seguir por el canal de YouTube que se habilitará para ello. Estamos seguros que debido a la importancia que ha venido conquistando el Mecanismo de Antikythera, estaremos presentes en diversas partes del Globo. Los invitamos a conocer los detalles de este mecanismo y comprometerse con su difusión.

**A t e n t a m e n t e**  
**UNISON NKUA ROIIIIG**