Finokalia station
Celebrating 30 years of excellence

- UoC & the Carob of Crete
- Exhibition: The origins of Sculpture
TABLE OF CONTENTS

3 European Reference Center for the Welfare of Aquatic Animals
4 Exhibition: The origins of Sculpture
7 Finokalia station: Celebrating 30 years of excellence
11 UoC & the Carob of Crete
15 Erasmus+ News
18 Daedalus student group
19 World space week in UoC
20 Research expedition by the Natural History Museum of Crete
21 Distinctions
23 Honorary Doctorate Krzysztof Matyjaszewski
25 Honorary Doctorate Dimitrios Christodoulou
27 News
The University of Crete has been selected by the Ministry of Rural Development & Food, following a competitive evaluation by the European Commission for Health and Food Safety, to promptly initiate the establishment of the Union Reference Centre for the welfare of aquatic animals. This center, based in Crete, will be the first to specialize in issues related to aquatic animals. The consortium overseeing the project’s implementation is coordinated by the University of Crete, with the UoC Vice-Rector for Research and Development, Professor Michail Pavlidis, serving as the scientific lead.

Partners in the project include the Biology Center of the Czech Academy of Sciences and the Autonomous University of Barcelona.

The initiative’s success was driven by the collaborative efforts of the Research Support Unit staff at the University of Crete, which, under the guidance and coordination of Professor Michail Pavlidis, actively contributed to the preparation of the joint proposal in tandem with the research teams of the partner institutions. Furthermore, the establishment of the Reference Center benefited significantly from the support and contribution of the Minister of Rural Development and Food Mr. Lefteris Avgenakis and the Directorate of Animal Protection, Pharmaceuticals and Veterinary Applications.
The exhibition “THE ORIGINS OF SCULPTURE: Archaeological finds from the Old World and Lesbos, 2.5 million to 50,000 years ago” was inaugurated by H.E. the President of the Republic, Mrs Katerina Sakellaropoulou at the Benaki Museum, Athens.

The exhibition is organized by the University of Crete, the Benaki Museum and the Region of Crete, in collaboration with the Ministry of Culture. It is realized with the support of the General Secretariat of the Aegean and Island Policy, the North Aegean Region, and the Municipality of West Lesbos. The scientific curation of the exhibition is undertaken by Nena Galanidou, Professor of Prehistoric Archaeology at the University of Crete, and Thomas Wynn, Professor of Cognitive Archaeology at the University of Colorado, with artistic contributions from Tony Berlant, a visual artist.

The exhibition includes stone tools and ‘figure stones’ depicting birds, faces, and bodies originating from sites in Europe, Africa, and the Middle East and presented for the first time in Greece. The oldest goes back to 2.5 million years and the most recent dates to 50,000 years Before Present.
These works by ancestors of Homo sapiens testify that the aesthetic awakening and the ability to recognize beauty and meaning in objects go back millions of years before our time, when the origins of the art of sculpture can be traced.

The exhibits are rare Paleolithic stone tools from the Mytilene Archaeological Museum, the Tony Berlant collection (Nasher Sculpture Center, Dallas), the Institut de Paléontologie Humaine in Paris, the Upper Galilee Museum of Prehistory and the Hebrew University of Jerusalem, the Museum of Archaeology and Anthropology of Cambridge University, the Centre Européen de Recherches Préhistoriques de Tautavel and the Witwatersrand University Museum in South Africa.

Snapshot from the opening of the exhibition and the address by the Rector of the University of Crete in the presence of the President of the Hellenic Republic

Snapshot from the press conference held before the opening of the exhibition at the Benaki Museum
H.E. President Katerina Sakellaropoulou noted in her inaugural address: “I am delighted to inaugurate the exhibition *The Origins of Sculpture*, this exceptional collection of Paleolithic stone artifacts, which seems to suggest a new genealogy of the history of art. (...) We are amazed by the search for symmetry by our prehistoric ancestors during the process of creating teardrop or spherical tools, or the recognition of shapes on the surface of rocks and their enhancement. I think that if we define art as a form that transcends use, then these exhibits are indeed some of the oldest aesthetic objects on earth.”

Speeches were also addressed by the Rector of the University of Crete, Professor Georgios M. Kontakis, and Mr. Stavros Arnaoutakis, Regional Governor of Crete. Subsequently, the curator and Professor of the University of Crete, Ms. Nena Galanidou, spoke about the exhibition and its particular interest. Her speech concluded with thanks to all who contributed to its realization.

The exhibition opens to the public on September 27, 2023, and will run until January 7, 2024.
Since 1993, the Environmental Chemical Processes Laboratory (ECPL) of the UoC Department of Chemistry operates the Atmospheric Monitoring Station in Finokalia, Lassithi, which is celebrating thirty years of operation this year.

Finokalia station is located near the northern coastline of Crete on top of a hill 250 metres above sea level. The location was chosen by Prof. E. Stephanou (Chemistry Dept.) and Prof. Chaldoupis (Physics Dept.) for its high wind potential that eliminates local pollution and permits measurements of transported pollution from long distances. The hill of Finokalia has unobstructed views of the sea at such an angle that it covers most of the winds (about 65%) reaching there, without local pollution sources (Figure 1). The nearest large town is Heraklion, the nearest small village is 2 km away and is almost uninhabited, while there is a lack of significant human activity at a distance of at least 15 km.

Thus, the station receives air masses from long distances that contain chemical compounds from urban centers, for example Athens and Istanbul, from industrial activities in the Balkans, Russia and central Europe, from large fires in the region and finally from desert dust transport from Sahara.

During its 30 years of operation, the station has significantly contributed to the recording and the study of air pollution in South-East Europe. It is currently the oldest station in the region, the only one of its kind within a radius of 700 km and is considered a reference point for the chemical composition of the atmosphere in the Eastern Mediterranean. The station hosted the MINOS (Mediterranean INtensive Oxidant Study) campaign in summer 2001, coordinated by the Max Planck Institute in Mainz with the support of the University of Crete. Its results documented the high levels of reactive trace gases and aerosols in the Eastern Mediterranean atmosphere and their climate impact as well as the role of the region as a receptor point of air masses of variable origin (Figure 1), making the location a natural laboratory to understand atmospheric chemistry and climate changes. The results have been published in Science journal.

Figure 1. General pattern of air mass flow during the MINOS campaign in summer 2001, in the lower (BL), middle (MT), and upper troposphere (UT) modified from [https://doi.org/10.1126/science.1075457].
Finokalia station provides invaluable information on the evolution of the atmospheric environment in the region with unique long-term data on a continuous basis, such as surface ozone data starting in 1998, particulate matter data since 2004, and greenhouse gases, notably carbon dioxide and methane, absorbing aerosol and extinction of solar radiation since 2002, thus systematically observing both warming and cooling constituents of the atmosphere.

It is not by coincidence that the Finokalia station attracts intense scientific interest while hosting innovative field experiments and providing access to researchers from abroad to carry out targeted experiments. The uniqueness of the station is reflected in the numerous (>200) scientific publications, postgraduate (>40) and PhD (>30) theses, scientific projects carried out at the site and its participation in the most important international research infrastructures and networks of environmental research stations (principal investigators Profs. Nikos Mihalopoulos and Maria Kanakidou) like the ICOS for the greenhouse gases, the ACTRIS for the aerosol-cloud observations, the eLTER for ecosystem observations and the Global Atmospheric Watch (GAW) of the World Meteorological Organisation (WMO).

The observations at Finokalia station document the increasing trends of carbon dioxide (CO₂) and methane (CH₄) in the East Mediterranean, major greenhouse gases (Figure 2), contributing to the warming of our planet. These data consist the longest record of greenhouse gases observations, in the East Mediterranean region. Interestingly CH₄ levels in the East Mediterranean are significantly higher than those recorded in the middle of N. Pacific far from major CH₄ sources. In parallel, Finokalia observations show decreasing trends of human driven aerosol like sulfates, of acid rain, and of carbon monoxide (Figure 3) due to implementation of clean air policy in the 90s, like the use of renewable energy, cleaner fuels for energy production and shipping, filters, new and less polluting technologies and catalytic convertors to reduce emissions from car exhausts. These long records together with satellite observations and meteorological data enabled explaining the exceptionally rapid increase of temperature in the Eastern Mediterranean compared to the globe and revealed the key role of pollution aerosols in partially masking the warming effect of greenhouse gases. These results have been recently published in Nature NPJ Climate and Atmospheric Science. The long airborne particulate matter record from Finokalia station has also contributed to consolidate modeling results on the impact of sudden stratospheric warmings to the North African dust emissions. This finding that can help improve the forecast of dust outbreaks in the Eastern Mediterranean has been recently published in Nature Communications.

Finokalia observations also help to understand the drivers of oligotrophic nature of Eastern Mediterranean and the anomalous N/P ratio observed in the seawater. They have shown that this results from the continuous input of anthropogenic nitrogen to the marine ecosystem and collaboration with the Hellenic Center for Marine Research (HCMR) enables the evaluation of the impact of these changes on the marine ecosystem. The findings have been the topic of several publications including in Global Biogeochemical Cycles and in Limnology and Oceanography.
The last years the station intensified the communication of its results to pupils and the young generation more generally as well as to the public. It is important to mention that through the Edu4Clima programme, supported by the Hellenic Foundation for Research and Innovation, Finokalia Station gives secondary school students the opportunity to learn and experiment on air pollution and climate change through out-of-school experiences. Building upon the effort of the Edu4Clima programme, Finokalia station is also part of Greek hub of the ERASMUS + Teacher’s Academy on climate change (CLIMADEMY), addressed to secondary education teachers in service. Finally, in the frame of the EU collaboration project EDU4CLIMATE, Finokalia hub will offer new PhD theses and host specialized summer schools on state-of-the art technologies in observing and modeling atmospheric composition and climate change for young researchers.

These achievements have been presented at the 30-year celebration festivities on the 16th and 17th of June 2023. On the first day, a series of targeted presentations took place at the Chamber of Commerce of Lassithi in Ag. Nikolaos. The Deputy Governor of the region of Crete responsible for the environment and climate, Mr. Nikos Xylouris, opened the event and together with the Mayor of Ag. Nikolaos Municipality Mr. Antonis Zervos and the Vice-Rector of the UoC Prof. Dimitris Milonakis welcomed the audience and expressed their continuous strong support to the activities of the Finokalia station. The Vice-Rector Prof. Costas Spanoudakis was also present at the event. Dr. Antonis Gypakis from the general secretariat of research and innovation participated through zoom, congratulated the efforts at Finokalia and informed the audience on the forthcoming calls to support research infrastructures. Prof. Dr. Paolo Laj, representing ACTRIS (virtual presentation), made special reference to the continuous efforts and dedication of Prof. Nikos Mihalopoulos and Drs. Giorgos Kouvarakis and Nikos Kalivitis to develop and maintain a high-quality atmospheric observatory at Finokalia, providing unique data on air pollution and climate relevant parameters in the East Mediterranean. Finally, he pointed out the importance of the station for the EUSAAR (first) and the ACTRIS (later) European networks and his wish to include the station at the new ACTRIS ESFRI. After these introductory talks, 3 scientific presentations took place from invited international collaborators. Prof Markku Kulmala from the University of Helsinki and head of the Atmosphere and Climate Competence Center in Finland discussed the importance of long-term observations for understanding the evolution of atmospheric composition and its impact on climate and investigate potential climate mitigation and adaptation options. He also presented some of the aerosol results at the SMEAR Finnish station Hyötilä. He invited Finokalia to become part of the SMEAR global network of stations. Prof. Dr. Alfred Wiedensohler, Head of the World Calibration Center for Aerosol Physics and of the ACTRIS European Center for Aerosol Calibration, from TROPOS in Leipzig, documented the need for calibrated aerosol observations to construct a global view of the evolution of aerosols in the atmosphere. The third invited presentation by Prof. Dr. Jos Lelieveld from the Max Planck Institute (MPI) for Chemistry in Mainz, who is also Emeritus Professor of the UoC Depart. Chemistry, presented a multitude of results covering the MINOS 2001 field campaign that he organized in collaboration with the UoC and having central ground-based site Finokalia station and Heraklion airport for aircraft operations. He also presented results for a recent collaborative study between the MPI, the Cyprus Institute and the University of Crete that valorized the observations from the station. Prof. Maria Kanakidou provided a short historical overview of the station evolution over the past 30 years and the day closed with the memories and thoughts of two alumni, Dr. Aleka Gogou (now Research Director at HCMR) and Dr. Mihalis Vrekoussis (now Professor at the University of Bremen).
During the second day of the celebrations, Finokalia station opened its doors to the public and about 100 people visited the station and were introduced to the research facilities. After the visit to the station the social part of the celebrations took place. A traditional lunch was served at the local taverna of the Lambraki family where Cretan cuisine and local wines were served to all the guests. In the afternoon the celebrations moved to the nearby village of Nofalias where the educational hub of the Finokalia station is located. In the old primary school where the hub is hosted, simple science experiments and educational activities were presented by the EDU4clima, the Natural History Museum of Crete, the exhibition team of the Department of Chemistry and the Heraklion and Rethymnon Experimental Centers of Science. The experiments fascinated kids and grownups and demonstrated that science can and must be fun!

At the end of the day, all people present got together in the yard of the hub and the UoC Band (Nikos Christakis, Phaedra Kozonaki, Aggelos Gouvousis and Christina Fotiou) took the stage creating an atmosphere of unity and euphoria, bringing everyone together and creating an unforgettable sense of connection. After the exhilarating performance of UoC Band, it was time for the local Cretan group of Lefteris Tambakakis to take center stage. Their infectious energy and raw talent quickly won over the hearts of the audience and soon the stage was full of people dancing until late hours.

The celebrations were sponsored by PURCON Ltd, KERNEL, NIKO Seaside Resort, Bluegr Hotel & Resorts, Region of Crete, Municipality of Ag. Nikolaos and the Greek Chemist Association.

The 30 years celebration of the Finokalia station was a reminder that teamwork, collaborative effort, close ties with the local community and hard labor have contributed to continuity and scientific excellence.
The University of Crete actively promotes research that connects local products and traditions with innovation, technology, and entrepreneurship. The Cretan carob is a perfect example of redefining a traditional product to these means. A tree native to the Mediterranean region and the Middle East that produces carob pods, an important nutritional product for both humans and animals with a long history on the island of Crete. Nowadays, the Cretan carob has been rediscovered by researchers and growers for its powerful potential to create new opportunities for entrepreneurs and the industry.

In the University of Crete, the Market and Entrepreneurship Research Unit, in collaboration with the Region of Crete, is the local coordinator of MOVING project that investigates carob flour as a unique agri-food product of the island and the innovative prospects it creates for youth entrepreneurship, economic growth, cultural and environmental sustainability (Please read more about the MOVING project in issue 4, p. 15 and in the official website of the project).

In addition, Professors Kriton Kalantidis (UoC Department of Biology) and Haralampos Katerinopoulos (UoC Department of Chemistry) have dedicated part of their research to the Cretan carob and recently presented their findings at the 2nd Mediterranean Scientific Conference “Carob tree: the coming back”, an interdisciplinary conference that presents recent research data, innovations and technologies related to carob. The Conference aims to fully exploit the potential of the Cretan carob in research & industry, but also to create a sustainable carob-centered model of development. The Conference took place at the Carob Mill in the village of Panormo, Crete, on October 22, 2023.

Rediscovering Carob

Prof. Kriton Kalantidis, UoC Department of Biology

Carob has been an important crop for many communities of the Mediterranean until a few decades ago. It has been used both as animal feed but also as supplementary food in human diet. Being sweet and tasty, in some parts of Greece including Crete, it was known as the “poor man’s chocolate”. It has high content in sugars and antioxidants and has proven soothing effects in the human and animal digestive system. The Carob seed has high protein content and contains the so-called Carob gum, an excellent natural gelling agent highly sought-after in the food industry. The easy access in the global market to endless sweet products and sweeteners, as well as the globalization
of cheap animal feed has resulted in a steady decline of Carob cultivation. Recent developments, however, such as the need for resilience in supply chains, increased the importance of local suppliers, and the general attention to traditional foods and their value has driven a new interest in Carob in human nutrition and as animal feed. In addition, the progressive increase in the frequency of weather calamities due to climate change has highlighted the importance of an almost forgotten dimension in the choice of crops to cultivate: that of resilient crops. The Carob tree, due to its impressive ability to grow in arid lands, its resilience to pathogens and its relatively minor needs in fertilizers, is a great alternative for lands where intensive agriculture is not anticipated. On top of the above, the Carob tree now features high as an ornamental and reforestation species in the Mediterranean.

With all this in mind the University of Crete has taken a central role in initiatives to help in the valorization of this crop that has been traditionally grown on the island for thousands of years. Researchers from the UoC Departments of Biology and Chemistry have started a fruitful collaboration with stakeholders in the Carob initiative, growers, researchers at Demokritos research center in Athens and HMU in Heraklion, and non-profit organizations to study many aspects of the carob tree and the carob products. Specifically, the University of Crete laboratory at the Dept. of Biology has worked in deciphering for the first time worldwide the DNA of the Carob tree. The tree of choice was a productive genotype from a Carob orchard at the Pines area not far from Elounda in Lassithi, Crete. The reading of the Carob tree DNA is a significant first step in characterizing Carob genotypes diversity as well as identifying the genetic background of important characteristics of Carob. The whole DNA of the tree has been “read” at high quality and specific functions are currently being studied. A portion of these results appear already in a prepublication online and a full scientific paper is also underway.

In addition, at the UoC Dept. of Chemistry the chemical profile of the sequenced carob has been made and the extracts have been tested for their biological activities in collaboration with NCSR “Demokritos” in Athens. Indeed, the profiling identified fractions and compounds with great potential for human health.

Our work with Carob at UoC has already produced exciting results and are just the first steps in what we strongly believe will be a long-lasting interest in this traditional yet emerging crop.
Crete has one of the richest flora in the Mediterranean region. Carob is one of the 180 endemic species among, approximately, 1800 plant species of Crete. It is a species that grows in hot and dry areas and can thrive in areas with a subtropical climate. The vegetative growth of the tree is relatively sensitive to frost but shows excellent resistance to high temperatures. It thrives in a wide range of conditions and can grow even in poor and degraded soils.

The tree is known since antiquity. Samples of carob found in Jericho are as old as 8000-6000 BC and those found in Egypt date back to the 12th Dynasty (1991-1778 BC). In Crete, the oldest samples are from the Neo-palatial period (ca. 1600 BC). The domestication of the carob was done probably in 1000 BC. The plant is mentioned in the works of Theophrastus (371-287 BC), Strabo (63/64 BC - 23 AD) and Dioscorides (1st century AD). In the Hellenistic period (323 – 30 BC), the name Siliqua graeca, the Greek pod, prevailed over the other names of the plant.

During the 2nd World War and in the first difficult post-war years, the carob, known until then as the “poor man’s chocolate”, proved to be an effective antidote to hunger in the Mediterranean countries, Greece included. In Crete it was consumed as fruit and used for the production of carob honey and was ground into flour. In fact, carob flour was used as a substitute for coffee. It was often mixed with some wheat flour and brown flour or dried fruit flour to make a substitute for bread.

Carobs are consumed in the human diet as carob flour, as carob syrup (carob honey) but also as carob gum thickener (food additive), produced exclusively from the carob seed. It is worth mentioning that the gum (E 410) is an approved food additive in the EU according to annexes II and III (Regulation (EC) no 1333/2008).

Carob (Ceratonia siliqua L.) and its subspecies are characterized by groups of components, which constitute their chemical fingerprint. Thus, it is possible to define the Chemotaxonomy of the subspecies and their differentiation. It is necessary for carob producers to know the origin of the material they are using, since different carob species contain the major components in different proportions. Depending on the properties of each subspecies, the producers can choose the one(s) with the highest content of nutritional material they are promoting.

Recent data indicate that the fruit is a mixture of primary and secondary metabolites, with a characteristic presence of sugars and fiber. Sucrose is the major carbohydrate followed by fructose and glucose. Phenolic compounds, mainly polyphenols, have been detected via chemical analysis. The fruits are particularly rich in flavonols and their glycosides. They also contain tannins and amino acids and the pod content is also an excellent reservoir of potassium and calcium.
Our lab has thirty years’ experience in the isolation and identification of components from the Flora of Crete. Our research activities were soon appreciated by the local community, and the Region of Crete supported financially our lab in securing the ISO Accreditation Certificate (ESYD 1176) in the analysis of essential oils from plant species.

In collaboration with the UoC Department of Biology and the Hellenic Mediterranean University we received funding for an ongoing program entitled “Actions for the optimal exploitation of the potential of the Carob in the Region of Crete”.

We are members of the Cultural Society “Epimenidis” located in the Carob Mill in Panormo, Rethymnon, and the NPO “The carob of Crete” whose initiatives ensured the inclusion of the carob in the Intangible Cultural Heritage of Greece. We co-organized the 1st and the 2nd Mediterranean Conference on the renaissance of carob tree cultivation in the Mediterranean, as well as several workshops and events focusing on the revival of carob cultivation in Crete.

We are planning to expand our activities in analyzing different carob subspecies abundant in Crete with the purpose of pin-pointing distinct differences in the subtypes, practically making a “guide” for the local producers that would choose the plant with the desired properties that fit their production needs.

We hope that these initiatives will contribute to the effort of the “coming back” of the carob in our nutrition, our culture and, in general, our everyday life.
Erasmus Days 2023 took place on October 9-14 and highlighted the importance of Europe’s cultural diversity, focusing on promoting new skills. In this spirit, the International Relations departments of the University of Crete organized a series of events and workshops for Erasmus students on both campuses.

### Workshops
- "Language and Cultural Diversity" by Mrs. M. Poulopoulou, UoC School of Philosophy.
- "Active citizenship for a sustainable Europe", workshop on recycling by Prof. M. Kalaitzidaki, UoC Department of Primary Education.
- Workshop on "ethical hacking & programming" by Daedalus student group, UoC Department of Computer Science.

### City tours
- Tour for Erasmus students in the old town of Rethymnon, offered by the Municipality of Rethymnon
- A unique “virtual” tour in Rethymnon using augmented reality games & applications, organized in collaboration with the UoC e-Learning Lab and the Department of Primary Education.
- "Heraklion multi-culti": guided tour in the old town of Heraklion and Vikelea Library offered by the Municipality of Heraklion, introducing the different cultures “hidden” in the architecture and history of the city. The event concluded with a discussion on redefining traditional skills and professions through innovation and research, led by Mrs. Evelina Bakinta, President of the Association of Women Entrepreneurs in Crete.
ESN City Game in Heraklion

The Erasmus Student Network of the University of Crete welcomes new Erasmus students in the beginning of each semester with a fun city game that introduces the city, its history and most important landmarks to newcomers.

Can you solve the riddles?

I hope for nothing, I fear nothing, I am free.
Find the resting place of the famous Cretan author in the city!

I am looking for the Mayor of Heraklion. Where do I go?

November 11 is a public holiday in Heraklion. Where is the heart of this holiday?

66 million years ago they disappeared because of a meteorite. Now they stand looking straight to the Cretan Sea.
Go find them and take a group photo!

Find the bomb that never exploded and take a photo with it!
On May 15-19, 2023, we conducted a visit to the University of Crete together with my colleague Prof. Asc Alma Barbullushi, in the framework of the Erasmus + exchange and partnership program between Logos University College (Tirana Albania) and UoC.

During this fruitful week, several important meetings were held with the Heads of the Departments of Biochemistry Professor Tsatsanis and Hematology Professor Helen Papadaki and Mrs Tonia Tzanaki, as well as with representatives of the UoC Erasmus+ office, Mrs. Stella Melina Vasillaki. We visited the medical school and the University Hospital, where we got to know the biochemical and clinical laboratories closely. We also enjoyed an interesting tour of the medical museum at the university.

Prof. Ridvana Mediu, Fac. of Applied Sciences, Head of Dept. of Medical Sciences in Logos University College

Prof. Ridvana Mediu and Prof. alma Barbullushi from Logos University of Tirana in Voutes Campus, Heraklion
A couple of years ago the students of the Computer Science Department (CSD) of the University of Crete (UoC) created 0xdeada1u5 (Deadalus - Δαιδαλος), a student group dedicated to cybersecurity and competitive programming.

The main goal of the group is to educate students in the area of computer security and competitive programming and inform them about the vast employment opportunities in these fields. Students frequently participate in programming contests that fall under two categories:

- Capture the Flag
- Competitive Programming

The first type of contest (Capture the Flag) aims to sharpen the skills of students in the area of computer security - both defensive and offensive. Capture the Flag contests take place in simulated computing environments, specifically designed to be vulnerable so that contestants strive to find the vulnerabilities. Those who find the issues, get the “flag” and the points towards a good position in the contest.

The second type of contest (Competitive Programming) sharpens the skills of students in the area of finding fast solutions to problems that usually seem to take a very long time to compute. This type of programming is valuable for large-scale companies that have a vast number of users and a planet-wide infrastructure. Let us illustrate this with a simple problem: suppose that you would like to raise number 1.01 to the 255th power: 1.01^255. An obvious way to do this would be to multiply 1.01 with itself 254 times.

Is there a faster solution? Can it be generalized and compute 1.01^x for any positive integer x?

Over the past couple of years more than 40 students have been members of the team and most of them have successfully participated in national and international programming contests. For example, they have achieved second place in the Greek University “Capture the Flag” programming contest (twice). Members of the group frequently participate in the Greek National CyberSecurity Team which represents Greece in international Cybersecurity Contests. Having such experience, it is no surprise that members and alumni of the group have worked, or are currently working, in well-known places including Google, Oracle, CENSUS, Cognizant, Riscure, etc. Some others continue for graduate studies in well-known Universities including Vrije Universiteit, and DTU.

In order to prepare students who are not ready (but would like) to take part in such contests, Deadalus has created the “Deadalus Academy” - a discord server where students can join and use it as a stepping stone towards joining the Deadalus Group in international contests. Having a group such as Deadalus not only helps students acquire new skills, but it also helps the students apply the knowledge they have acquired in their undergraduate and graduate courses. Finally, it helps students acquire soft skills including teamwork, leadership, and achieving a healthy competitive spirit. Daedalus is open to international and Erasmus students of the UoC and participated in the Erasmus days 2023 with an introductory workshop on ethical hacking and competitive programming.
**World Space Week 2023**

**October 5, UoC School of Sciences and Engineering, Department of Physics, Voutes Campus, Heraklion Crete**

World Space Week is an international celebration of science, technology and their contribution to improving human living standards. The United Nations General Assembly announced in 1999 that World Space Week would be celebrated every year from 4 to 10 October. These dates commemorate two events:

a) **4 October 1957**: launch of the first artificial satellite of the Earth, Sputnik 1, thus paving the way for space exploration

b) **10 October 1967**: the signing of the Treaty on Principles Governing the Activities of States in the Exploration and Peaceful Uses of Outer Space, including the Moon and other celestial bodies.

World Space Week events take place all over the world in schools, universities, science centres, planetariums, museums, companies, etc. In 2022, over 11221 activities took place worldwide in 87 countries.

In the framework of this celebration, the Institute of Astrophysics of the Foundation for Research and Technology-Hellas (FORTH), in collaboration with the Department of Physics of the University of Crete, organized, for a second consecutive year, an event at the Department of Physics, on Thursday 5 October 2023.

Students from the UoC Astronomy Student Club, postgraduate students and volunteers have participated in the event, preparing educational activities on the theme of Space for pupils and families with free admission.

These actions were open to the local community and suitable for people from 6 years old and above. The event hosted about 90 visitors who became engaged with activities on the theme of space and learned about employment opportunities in this field, thus honoring this year’s World Space Week theme “Space and Entrepreneurship”.

**more info**
Research expedition
by the Natural History Museum of Crete

For one more year, the Natural History Museum of Crete (NHMC) of the University of Crete completed a research expedition to the Greek mountains. This year’s area of research interest included Mount Tomaros and Souli Mountains, located in the municipality of Dodoni. This year’s expedition involved undergraduate and postgraduate students of the University of Crete and scientists from the NHMC who conducted fieldwork from June 27 to July 1, 2023.

Warm thanks to ANEK Lines for sponsoring free tickets for the expedition members. The sponsorship, which has been ongoing for many years, has contributed to exploring unknown aspects of the rich Greek biodiversity.
According to a recent classification of the bibliometric study on the World’s Top 2% Scientists List, conducted by John P.A. Ioannidis (Stanford University), published on October 4, 2023, 74 professors and researchers of the University of Crete are included in the ranking. The study evaluates the impact of the scientific work of almost 10.000.000 scientists worldwide for 2013-2022, using objective bibliometric criteria and classified into 22 scientific fields and 176 subfields.

**Distinctions**

**EAA Awards 2023 - Prof. Dr. Michael Taroudakis Recognized for Contributions to the Promotion of Acoustics in Europe**

Presentation of the European Acoustics Association (EAA) Award to Professor Michael Taroudakis

The Academic Authorities of the University of Crete would like to express their warmest congratulations to the Professor of the Department of Mathematics and Applied Mathematics and former Rector of the University of Crete, Mr. Michael Taroudakis, for receiving the European Acoustics Association (EAA) award for the promotion of Acoustics in Europe. As a professor at the University of Crete and an expert in underwater acoustics and its related areas, Prof. Taroudakis has left an indelible mark on the field through his extensive involvement in various acoustical organizations and initiatives.

The award was presented during the FORUM ACUSTICUM 2023 Conference of the European Acoustics Association held in Turin.

Prof. Taroudakis has held prestigious positions such as President of the Acoustical Society of Greece (HELINA), President of the European Acoustics Association, and President of ICA, the International Commission for Acoustics. His active participation and leadership in these organizations have significantly promoted the field of acoustics globally.

One of Prof. Taroudakis’ most recent achievements was his instrumental role in the International Year of Sound (IYS), conducted under the auspices of UNESCO and coordinated by Prof. Taroudakis on behalf of ICA. The IYS aimed to raise awareness about the benefits of sound and the consequences of noise, with a particular focus on educating younger generations. This initiative garnered significant international support and visibility, making it a resounding success.

Additionally, Prof. Taroudakis has played a vital role in international congresses, organizing structured sessions and coordinating their development. His leadership was exemplified in his role as the organizer of Euronoise 2008 in Greece.

**Professors and Researchers of the University of Crete in the recent “World’s Top 2% Scientists List”**

According to a recent classification of the bibliometric study on the World’s Top 2% Scientists List, conducted by John P.A. Ioannidis (Stanford University), published on October 4, 2023, 74 professors and researchers of the University of Crete are included in the ranking. The study evaluates the impact of the scientific work of almost 10.000.000 scientists worldwide for 2013-2022, using objective bibliometric criteria and classified into 22 scientific fields and 176 subfields.
Professor and Director of the Department of Toxicology & Forensic Chemistry of the University of Crete Aristides Tsatsakis was invited as keynote speaker at the international conference on Traditional Chinese Medicine, organized in Fuxian by the Chinese government and the Alpha Group of Companies (11-13 October 2023), together with Nobel Laureate in Chemistry Dr. Lewitt from Stanford University. The main topic of his talk was the presentation of the RLRS (Real Life Risk-Simulation) model, which studies the effect of long-term exposure to low doses of various chemicals and compounds and their combination on human health, leading to conclusions about the potential risks or benefits that various xenobiotics may have for humans, using appropriate biomarkers, including that of telomeres. Great interest in new collaborations has been shown by Chinese organizations aiming to design new products under the guidance of Professor Aristides Tsatsakis and his scientific and research team in the context of the fusion of ancient medical practices and modern technology, which is a significant distinction and international recognition of the coupling of excellence and innovation that characterizes their work.

The ranking includes:

**32 professors & researchers of the UoC School of Medicine:** Antoniou Katerina M.; Bertsias George; Briassoulis George; Chamilos Georgios; Damlakis, John; Dimitriou, Rozalia; Filippatos Theodosios D.; Gourtsoyiannis Nicholas; Kalaitzakis Evangelos; Karantanas Apostolos H.; Kafatos Anthony G.; Kouroumalis Elias; Koutroubakis Ioannis E.; Kranioti Elena F.; Lionis Christos; Makrygiannakis Antonios; Mavroudis Dimitrios; Melissas John; Nikitovic-Tzanakaki Dragana, Pallikaris Ioannis G.; Plaitakis Andreas; Prokopakis Emmanuel P.; Samonis George; Siafakas, N.; Souglakos John; Spandidos Demetrios A. Tavernarakis Nektarios; Tzanakis Nikolaos; Tsatsakis Aristidis; Tsiligianni Ioanna; Tsilimparis Miltiadis K.; Vapouridis, Katerina.

**9 professors & researchers from the UoC Department of Chemistry:** Anastasiadis Spiros H.; Anglos D.; Dais Photis; Demadis Konstantinos D.; Kanakidou Maria; Stephanou Euripides; Stratakis Manolis; Froudakis George E.; Chaniotakis Nikos.

**8 professors & researchers of the UoC Computer Science Department:** Argyros Antonis; Komodakis Nikos; Markatos Evangelos P.; Stephanidis Constantine; Stylianou Yannis; Tziritas Georgios; Trahanias Panos; Tsamardinos Ioannis.

**8 professors & researchers of the UoC Department of Material Science and Technology:** Armatas Gerasimos S.; Chronis Nikos; Kafesaki Maria; Manouras Theodore; Petekidis George; Stoumpos Constantinos C.; Tzortzakis Stelios; Vlassopoulos Dimitris.

**8 professors & researchers of the UoC Department of Physics:** Economou Eleftherios N.; Georgakilas Alexandros G.; Kominis Ioannis; Lambropoulos, P.; Makris Constantinou G.; Papanicolaou Nikos; Paul Reig; Zotos, Xenophon.

**3 professors & researchers of the UoC Department of Biology:** Gizeli Electra; Zouros Eleftherios; Koumoundouros Giorgos.

**3 professors & researchers of the UoC Department of Mathematics and Applied Mathematics:** Efremidis Nikolaos K.; Rosakis Phoebus; Charmandaris Evangelos.

**2 professors and researchers from the UoC Department of Preschool & Primary Education:** Kalogiannakis Michail and Papadakis Stamatis.

**UoC Department of Economics:** Stylidis Dimitrios.

**UoC Department of Psychology:** Zampetakis Leonidas A.
The University of Crete awards Krzysztof Matyjaszewski, Professor of the University of Carnegie Mellon, the Honorary Doctorate of the Department of Material Science and Technology.

The Rector of the University of Crete, Professor George Kontakis, awarded the honorary degree on September 11, 2023, at Voutes Campus, Heraklion. Professor Matyjaszewski is a leading scientist in the field of chemistry and has received numerous awards and honors for his scientific work, which has a substantial impact on everyday life. Professor Krzysztof Matyjaszewski was also welcomed and addressed by the Dean of the School of Science and Technology of the University of Crete, Professor Emmanuel Stratakis, and the Chair of the Department of Materials Science and Technology, Professor Maria Vamvakaki. Mr. Dimitrios Vlassopoulos, Professor of the Department of Materials Science and Technology, spoke about the personality and work of the honored. In his address, Krzysztof Matyjaszewski delivered a speech on “New Materials by Macromolecular Engineering Using ATRP.”
Professor Krzysztof Matyjaszewski, who is now officially part of the University of Crete community as an Honorary Doctorate of the Department of Materials Science and Technology, with which he maintains an excellent professional collaboration, holds the J.C. Warner Chair in Physical Sciences and is Director of the Center for Macromolecular Engineering at Carnegie Mellon University, USA, and is a pioneer in macromolecular chemistry worldwide. In 1994, he discovered controlled radical atom transfer polymerization using copper, which is now the primary method by which polymers are made and which, since 2004, has been commercialized in the US, Japan, and Europe. He has published more than 1200 papers in international peer-reviewed journals. His work has garnered more than 184000 citations with an h-index of 207 on Google Scholar, and he holds 68 patents in the US. He is a member of the National Academy of Engineering and the US Academy of Sciences and a member of the Australian, Polish, and Georgian Academies of Science. He has received numerous awards and honors, including the Presidential Green Chemistry Challenge Award, Wolf Prize in Chemistry, Dreyfus Prize in Chemical Sciences, Benjamin Franklin Medal in Chemistry, and NAS Award in Chemical Sciences and 11 Honorary Doctorates. Professor Matyjaszewski’s research focuses on developing innovative materials for applications in medicine, energy, and the environment and has significantly impacted the scientific community worldwide and society at large. Professor Krzysztof Matyjaszewski is not only a leading international figure in polymer science but also an outstanding academic teacher accessible to students and colleagues.
Demetrios Christodoulou, Professor Emeritus at the Federal Institute of Technology Zurich (ETH), a top mathematician and a brilliant mind, was appointed Honorary Professor at the University of Crete on October 10, 2023, at Voutes Campus, Heraklion. The ceremony opened with greetings by Prof. Georgios Kossioris, Vice-Rector for Academic Affairs, Lifelong Learning, International Relations & Outlook, Prof. Emmanuel Stratakis, Dean of the UoC School of Science and Technology, and Alkis Tersenov, Chairman of the Department of Mathematics and Applied Mathematics. A presentation on the personality and work of the honoree followed by Mr. Mihalis Dafermos, Professor of Mathematics at Princeton University and holder of the Lowndean Chair of Astronomy and Geometry at Cambridge University. The ceremony concluded with a speech by the honoree on “Differential equations in their historical evolution.”
Demetrios Christodoulou studied physics at Princeton University and received his doctorate in 1971. He then turned to mathematics and became a Professor of Mathematics, first at Syracuse University in New York (1985-1987), then at the Courant Institute of New York University (1988-1992), and in 1992 at Princeton University, a position he held until he moved to the Polytechnic of Zurich in 2001. There, he served as Professor of Mathematics and Physics until 2017; since then, he has been an Emeritus Professor. He has been honored with the MacArthur Award in Mathematics and Physics (1993), the Bocher Prize of the American Mathematical Society (1999), the Shaw Prize in Mathematical Science (2011), and the Henri Poincaré Prize of the International Union of Mathematical Physics (2021). He is a member of the American Academy of Arts and Sciences, the National Academy of Sciences of the USA, and the Academia Europaea.
19/9 Chinese Delegation from the Shanghai Hospital Development Center visits the University of Crete

The University of Crete hosted a six-member high-ranked delegation of the Shanghai Hospital Development Center, a state-owned foundation that develops and operates health care facilities in Shanghai, on September 19, in the view of collaboration. The delegation was warmly welcomed by the Rector Prof. George M. Kontakis, the Vice Rector of Academic Affairs, Lifelong Learning, International Relations and Outlook, Prof. George Kossioris, and the Dean of the University’s Medical School, Prof. George Kochiadakis with the participation of professors of the UoC Medical School. The delegation’s interest was focused on the University’s Medical School and the University General Hospital of Heraklion (Pagni), while the agenda of the visit included talents development, smart medical research, transformation of medical scientific and technological achievements and dealing with emergency public health crisis. Presentations were made on the University of Crete, its foreign language postgraduate programs, the foreign language undergraduate program in Medicine and the Erasmus+ collaborations of Medical School and the management of the Covid-19 pandemic. The program also included a tour of the delegation to the laboratories of the Medical School of the UoC and a meeting at the University General Hospital of Heraklion (PAGNI) with the Deputy Hospital Director Mr. Stylianos Kteniadakis.

29/9 The UoC Science Teaching Lab at the Researcher’s Night event in Rethymnon

The UoC Science Teaching Lab participated in the Researcher’s Night in Rethymnon on September 29, organized by the Institute of Plasma Physics & Lasers, with a presentation of various experiments and activities for the exploration of natural phenomena for kids and adults alike!

https://www.facebook.com/edthe.uoc/posts/

3–10 Webinar on “The propensity to trademark innovation: implications for measuring innovation from small and medium-sized enterprises”

The UoC Knowledge Transfer Office in collaboration with the Master’s Program TIME-MBE organizes the 1st webinar for the academic year 2023-2024 on “The propensity to trademark innovation: implications for measuring innovation from small and medium-sized enterprises”. Keynote speaker: Carolina Castaldi, Utrecht University.

4/10 Lecture by Angie Hobbs on “Platonic proportions: beauty, harmony and the good life”

The Board of Directors of the Panagiotis & Efis Micheli Foundation and the UoC Department of Philosophy and Social Studies organize the first event of the lecture series “Art and Aesthetics in Ancient Greece”. Speaker:
Angie Hobbs, Professor of Public Understanding of Philosophy at the University of Sheffield, UK. The lecture’s subject is “Platonic Proportions: Beauty, Harmony and the good life.”

Please see the poster

9/10 Distinguished Lecture by Dr. Mark L. Rosenblu

The University of Crete organizes a distinguished lecture by Dr. Mark L. Rosenblu, Emeritus Director of the Department of Neurosurgery at Henry Ford Hospital, at the UoC School of Medicine. The title of the lecture is “Neurosurgery’s Impact on Neuro-Oncology “Can We Do Better?” - Lessons Learned Over 50 Years.

10-11/10 Chinese Delegation from Shenzhen University visits the University of Crete

The collaboration between Shenzhen University and the University of Crete was strengthened through a visit of a five-member delegation from the Chinese university to the University of Crete campuses in Rethymnon and Heraklion on October 10-11, 2023. Members of this delegation have previously worked with the Department of Preschool Education at the University of Crete as part of the Erasmus+ International Mobility Program. The high-ranking officials from Shenzhen University were welcomed by Professor Georgios Kossioris, Vice Rector for Academic Affairs, Lifelong Learning, International Relations, and Outlook. Engaging discussions took place between the delegation members and the Dean of the School of Education Sciences, as well as the Heads of the Departments of Economics, Department of Preschool Education, Computer Science, and academic staff from the Departments of Preschool Education (Erasmus Mundus JM Flourish, TALOS), Philosophy & Social Studies, and Computer Science. The delegation also had interactions with representatives from the University of Crete’s local Departments of International Relations. The overarching goal of this two-day visit was to explore and exchange new ideas and proposals that will lead to further collaborations between the two institutions at academic, research, and cultural levels. Additionally, these collaborations will enhance the internationalization and outreach efforts of both Higher Education Institutions.

20/10 International workshop: “Out in the open: exploring outdoor spaces, daily life and sociality in Neolithic Europe”

The ‘Out in the open: exploring outdoor spaces, daily life and sociality in Neolithic Europe’ workshop is an online culminating event of the three-year research project ‘Beyond Oikos: outdoor spaces, daily life and sociality in Neolithic Greece’ (Number: 00229) funded by the Hellenic Foundation for Research and Innovation (H.F.R.I) that has been hosted at the University of Crete with cooperative organization with the McDonald Institute for Archaeological Research, University of Cambridge. The workshop features a very interesting line-up of speakers and diverse material representations from different parts of Europe. See the full program here: https://lnkd.in/dd6WhsE5

Website: https://bonds.keme.uoc.gr/
The International Conference “Conceptualizing Crisis in Antiquity” is part of the research project Leaders and Crisis Management in Ancient Greek Literature, funded by the Hellenic Foundation for Research and Innovation and hosted at IMS/FORTH. The Conference aims to trigger a broad reflection on the phenomenon of crisis in Antiquity, by focusing on terms and concepts. Some of the research questions that will be addressed are the following: What are the different meanings and nuances of the ancient Greek term κρίσις (crisis) and how has it evolved over time? Which terms are employed in ancient civilizations to denote crisis and with what nuances? How did different cultures conceptualize crisis and which factors influenced their conceptualization? If terms related to crisis are absent, how is crisis depicted? [e.g. in ancient art, material culture etc.?] How are the different types of crisis represented? [e.g. political, emotional etc.?] In which ways can modern theories on crisis [e.g. sociological, political, philosophical, digital] illuminate our understanding of crisis in Antiquity? Conversely, to what extent do ancient representations of crisis have affinities with our modern concepts and experiences of crisis?

Organization/Contact:
• Melina Tamiolaki, (University of Crete and IMS/FORTH): tamiolaki@uoc.gr
• Markus Zimmermann, (University of Bayreuth): markus1.zimmermann@uni-bayreuth.de

Please see the full program in the attached document: file:///C:/Users/User/Downloads/20231020_CRISIS_programme.pdf

---

FOSSCOMM 2023 is organized in October 21-22 at UoC Voutes Campus, Heraklion. The annual nationwide meeting is aimed at people engaged with the commons but primarily focuses on free software. Its objectives include fostering community interaction, showcasing free/open source software projects, providing information and raising awareness about technology-related issues and how they affect our lives. The content is determined by the organizing team and ranges from technical matters and workshops, political discussions, legal/theoretical topics, translations and anything related to open standards/data, etc. Participation is free of charge, and there is no registration fee. Hundreds of participants take part in FOSSCOMM every year since 2008, and until today it has taken place in 10 different cities. The meeting this year is organized by rastapank UoC radio, tolabaki hackerspace and funding is based on sponsorships and donations from the community.


---

Webinar on “Market-Bound Research Contests”

The UoC Knowledge Transfer Office in collaboration
with the Master's Program TIME-MBE organizes the 2nd webinar for the academic year 2023-2024 on "Market-Bound Research Contests". Keynote speaker: Igor Letina, University of Bern.

27/10 The Ambassador of the Grand Duchy of Luxembourg visits the University of Crete

The Ambassador of the Grand Duchy of Luxembourg, Her Exc. Elisabeth Cardoso, accompanied by the Honorary Consul of Luxembourg in Crete, Mr. Georgios El. Aerakis, visited the University of Crete on October 27, 2023 where they met with the UoC Rector, Professor George M. Kontakis, the Vice-Rector for Academic Affairs, Lifelong Learning, International Relations and Outlook, Professor George Kossioris and officers from the Departments of International Relations, Public Relations and the UoC Welcome Office. The main topic of discussion was the prospect for cooperation between the University of Crete and the University of Luxembourg, creating new opportunities for both academic institutions.

30/10 Webinar: Medicine & Literature

The Seminar Series organized by the Medical Museum of Crete in collaboration with the UoC Research Center, presents the first webinar for the new academic year on October 30 at 19:00, titled: MEDICINE AND LITERATURE

Guest speakers: Professor Angela Kastrinaki, Emeritus Professor Thanasis Dinopoulos, and Emeritus Professor Alexis Politis.

Program:
- Angela Kastrinaki: "The image of the doctor in stories about the Asia Minor Catastrophe".
- Thanasis Dinopoulos: "Medicine in 'In Search of Lost Time'. Proust in the role of a neuroscientist".
- Alexis Politis: "Doctors and hospitals during the years of the Revolution".

3-5/11 International Conference on Early Childhood & Preschool Age

The School Psychology Research Unit of the UoC Research Center hosts the BRIGHT START INTERNATIONAL CONFERENCE ON EARLY CHILDHOOD, PRESCHOOL AGE & EDUCATION on November 3-5, 2023, at the Royal Olympic Conference Center in Athens. For more information, please visit: www.conferencebrightstartfoundation.org

7/11 Premier screening of the documentary film "Health and Healing in ancient Greece and China"

The premier screening of the documentary film “Health and Healing in ancient Greece and China” takes place on November 7, 2023, in the frame of the Conference “Therapy: Philosophy and Science in Ancient Greece and China”. The 30-minute documentary includes interviews with G.E.R. Lloyd, Professor Emeritus of Ancient Philosophy and Science at the Needham Research Institute (University of Cambridge); Richard King, Professor of History of Philosophy (University of Bern) and James L. Zainaldin, Associate Professor of Classical and Mediterranean Studies (Vanderbilt University). The documentary was filmed under the guidance of the project’s scientific supervisor, Chloe Balla, Associate Professor of Ancient Philosophy at the University of Crete; directed by Maria Giannouli and produced by "Onos Productions" - Chronis Pehlivanidis, in the framework of the Operational Programme “Human Resources Development, Education and Lifelong Learning”, co-financed by Greece and the European Union.