

THIS STORY BEGAN THOUSANDS OF YEARS AGO,

WHEN OUR ANCESTORS LOOKED AT THE SKY AND OBSERVED THE SUN, THE MOON AND THE STARS. FOR CENTURIES, OTHER WOMEN CONTINUED OBSERVING THE UNIVERSE AND MAKING INTERESTING AND IMPORTANT DISCOVERIES.

YOU ARE GOING TO EMBARK ON A JOURNEY, HAND IN HAND WITH THESE WOMEN, THAT WILL LEAD YOU TO DISCOVER THE MYSTERIES OF ASTRONOMY THAT THEY HAVE UNVEILED WITH EAGERNESS, COURAGE, AND JOY.







SPACE ATTRACTION

A galaxy is a system of stars, gas, dust, dark matter and perhaps dark energy,

The picture shows the Andromeda spiral galaxy, the closest to the Milky Way.



EVA GREBEL A LEADING EXPERT ON SMALL GALAXIES

First female professor of Astronomy at the University of Heidelberg in 2007. Her work on dwarf galaxies in the Local Group stands out.



VERA RUBIN DARH MATTER

She discovered dark matter in galaxies by analysing their rotation curves and was a pioneer in the study of the distribution of galaxies in the Universe. For her contribution to astronomy, the Large Synoptic Survey Telescope was named the Vera Rubin telescope.



MERCEDES PRIETO

PIONEER IN EXTRAGALACTIC ASTROPHYSICS

A prominent pioneer in Extragalactic Astrophysics, she was the first female astronomer at the Instituto de Astrofísica de Canarias. Her thesis contributed to the development of the infrared. development of the infrared development of the infrared telescopic facilities at the Teide Observatory and later at the Roque de los Muchachos Observatory in La Palma.



PARIS PISMIS FROM TÜRHIYE TO MEHICO

She was the first person to practice professional astronomy in Mexico. She received her doctorate in 1937 with a thesis on the rotation of the Milky Way at the California Institute of Technology. She then carried out her entire professional activity in Mexico as a teacher of astronomers.















HER, OUR **G**ALAXY

Our galaxy, observed by the Gaia satellite (2018).

HENRIETTA LEAVITT

THE NOBEL PRIZE THAT COULD NOT BE

She discovered how to measure the distance to galaxies using the variation in the brightness of pulsating Cepheid stars. She was nominated for the Nobel Prize, but four years after her death.

CATHERINE TURON

FINALLY THE DISTANCE TO THE STARS

An expert in the structure and dynamics of the Galaxy, she was responsible for the catalogue of stars observed during the European Space Agency's Hipparcos mission in 1988.



A CONTRACTOR OF THE PARTY OF TH

MARIE HORSAGA BREAHING STEREOTYPES

First female PhD in Astrophysics in West Africa from the University of Cape Town. She studies the distribution of dark and visible matter in galaxies.



Her study of dwarf galaxies in the context of the standard cosmological model was recognized by the Spanish Astronomical Society (SEA) in 2019 with the award for the best Spanish Doctoral Thesis in Astronomy and Astrophysics.















UHUCA ROMAN GRACE MOTHER OF THE HUBBLE SPACE TELESCOPE

She was the first woman to hold an executive position at NASA and the main driving force behind the Hubble Space Telescope project.

MAKING THE INVISIBLE



LEADING WORLD ASTRONOMY

Director General of the European Southern Observatory (ESO) from 1999 to 2007, she was the first female president of the International Astronomical Union (IAU) from 2006 to 2009.



MARÍA LUISA GARCÍA VARGAS MASTERING TECHNOLOGY

She has participated in the MEGARA instrument project at the Gran Telescopio de Canarias (GTC) and has been the first woman to create a private company, FRACTAL, specialising in astronomical instrumentation and software development.

MARIAM AL ASTURLABI



Mariam Al Asturlabi lived in Aleppo (present-day Syria) in the 10th century and was known for her mastery in the construction of astrolabes. The complex mathematical calculations she handled allowed her to innovate in the design of these instruments and in the development of navigation techniques. Her nickname, Al Asturlabi, suggests the public recognition of her work.















A GLOBALIZED UNIVERSE

Large-scale distribution of galaxy clusters and superclusters.





ISABEL MÁRQUEZ LEADER OF EXCELLENCE

First coordinator of the Women and Astronomy Commission of the Spanish Astronomical Society (SEA, 2010-2015) and first scientific director of a Severo Ochoa project in Astronomy. She studies active galaxies and galaxy clusters using optical, infrared and X-ray techniques.



First female head of the Science Program Selection Office at the Hubble Space Telescope Science Institute. She investigates the large-scale structure of the Universe through galaxy clusters.



TOWARDS STARDOM

Young expert in the theoretical Young expert in the theoretical study of galaxy clusters. Among the awards she has received are the MERAC award for the best young research career (2013) and the Friedich Wilhelm Bessel award for research quality (2017).



FLORENCE DURRET

women and science in France

She was president of the Association of Women and Science in France (Femme et Sciences). She has been awarded by the French government with its highest award: Chevalier de la Légion d'honneur.















WELL-PACED

The bodies that orbit the Sun form the Solar System.
They are the rocky planets, the gas giant planets, the dwarf planets that have not cleared their orbits and the smaller bodies without a spherical shape such as asteroids and comets. 500

CAROLYN JEAN SPELLMANN SHOEMAHER

COMET HUNTER

From the Mount Palomar Observatory she co-discovered the Shoemaker-Levy comet in 1993, the first comet observed to orbit Jupiter and not the Sun. She held the record for comets discovered alone or with other people, with 32 comets and more than 800 asteroids.

ANGIOLETTA CORADINI

WORLD EXPERT IN PLANETARY SCIENCES

During the 1970s she worked with lunar samples from the Apollo missions at the Institute of the National Research Council of Italy. She led the Italian team for the Visual Channel of the Cassini VIMS spectrometer.

IMHE DE PATER OBSERVING THE GIANTS IN INFRARED

Head Professor of Astronomy at the University of California, Berkeley. She makes infrared observations of giant planets using adaptive optics on the Keck, Gemini, and VTL telescopes, and at radio wavelengths using the VLA, ALMA, and LOFAR radio telescope arrays.



OLGA MUÑOZ UNVEILING THE

Researcher at the Instituto de Astrofísica de Andalucía-CSIC, she leads the Cosmic Dust Laboratory to characterise cosmic dust particles and participates in the Rosetto y Comet Interceptor missions of the European Space Agency. She studies the initial stages of formation of protoplanetary matter in microgravity in the ICAPS project.













MESSENGERS OF A VIOLENT AND EXTREME UNIVERS

Jungle of ultra-high and extremely high-energy particles and radiation that bombards us from outer space.



PATRICIA CARAVEO

GENERAL
DIRECTOR OF
ISTITUTO
NAZIONALE DI
ASTROFISICA
(INAF)

She has been part of several international missions in the field of high-energy astrophysics such as the European COS-B, ESA's INTEGRAL, NASA's SWIFT and FERMI and AGILE by the Italian Space Agency. She is also the representative of the Istituto Nazionale di Astrofisica (INAF) in the international Cherenkov Telescope Cherenkov Telescope Array (CTA) consortium. Leader in the study of neutron stars at different wavelengths.



ALICIA SINTES GRAVITATIONAL WAVES

Professor of Theoretical
Physics at the University of
the Balearic Islands, since
1977 she is a member of the
international projects LIGO
and GEO.
Her research focuses on the
field of gravitational waves,
messengers of neutron stars
and black holes.

MARÍA GILLER PIONEER IN COSMIC RADIATION

Director of the Department of High Energy Astrophysics at the University of Lodz (Poland) until her retirement in 2012. She collaborated with the University of Durham (United Kingdom) and participated in international projects such as the *Pierre Auger Collaboration* for the detection of cosmic radiation and the MAGIC Collaboration for the detection of gamma radiation.



JOSEFA BECERRA ASTROPARTICLES

Researcher at the Instituto de Astrofísica de Canarias (IAC). Her work is focused on the study of the extreme Universe through the observation of gamma rays. She actively participates in the *Cherenkov Telescope Array* (CTA) at the Roque de los Muchachos Observatory.

















ANDREA GHEZ 2020 NOBEL PRIZE IN PHYSICS

She was awarded the 2020 Nobel Prize in Physics for her studies on the supermassive black hole that resides at the centre of the Milky Way. She uses high-resolution infrared and adaptive optics as observation methods.

THE

HEAVYWEIG

Image of the supermassive black hole in M87.



MEGAN URRY UNIFIED SCHEME

She has made essential contributions to the study of active galaxies. The most outstanding is her scheme for understanding the different types of active nuclei that participate within a unified system.



Pioneer in the study of active galactic nuclei (AGN), plasma physics and accretion disks around supermassive black holes. Her work has been recognized by the French Academy of Sciences and by the European Astronomical Society, which awarded her the Lodewijk Woltjer Lecture.



LAURA FERRARESE THE BLACH HOLE AND ITS GALAHY

She discovered a fundamental relationship between the mass of the supermassive black hole and the motion of stars in the central region of galaxies. This relationship has important implications for understanding the origin and evolution of galaxies.











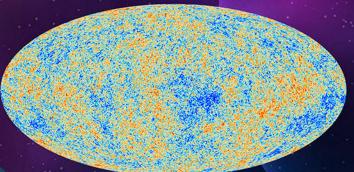








TO INFINITY AND BEYOND





SANDRA MOORE FABER ESTIMATING DISTANCES TO GALAHIES

Professor of astronomy and astrophysics at the University of California, she studies the structure of the Universe through the formation and evolution of galaxies. She is co-author of the Faber-Jackson relation used to measure distances to elliptical galaxies.



ROSA DOMÍNGUEZ-TENREIRO SIMULATING GALAKY

Map of the cosmic background radiation.

Professor of Astronomy and Astrophysics at the Autonomous University of Madrid. She works in Theoretical and Computational Cosmology, studying the large-scale structure of the Universe and the formation of galaxies, mainly through numerical simulations.



LICIA VERDE HING JAUME I PRIZE, 2021

She studies the large-scale structure of the Universe using the distribution of galaxies and cosmic background radiation. She is an ICREA professor of Physics and Astronomy at the Institute of Cosmos Sciences of the University of Barcelona. She has been awarded the King Jaume I Prize for Basic Research.



EOUITY AND

Interested in the dissemination and education of astronomy and cosmology, she chairs the Working Group for Equity and Inclusion of the International Astronomical Union. She works at the Astronomical Observatory of the University of Valencia.















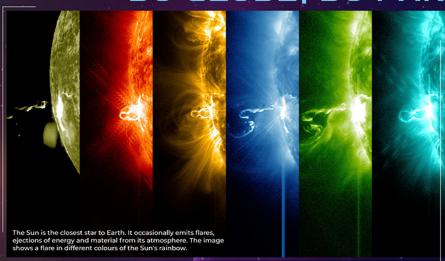








SO CLOSE, SO FAR





ELENA нномепно WITH THE SUN IN HER COMPUTER

Her theoretical Her theoretical research on the Sun's magnetic field has received funding from competitive European Research Council (European Union) grants on several occasions.



ASSUMPCIÓ CATALÀ

SPANISH PIONEER

The first female professional astronomer to obtain a teaching position at a Spanish university in 1975.

She carried out systematic observations of sunspots and devoted herself to the calculation of orbits and eclipses.



EDITH ALICE MÜLLER

RTOCE RESPONSIBILITY AT THE INTERNATIONAL ASTRONOMICAL UNION (IAU)

General of the International Astronomical Union (1976-1979). She conducted research to determine the cohemical composition determine the chemical composition of the Sun, its variations in the infrared spectrum and its thermal structure. An award bears her name.



LOUISE HARRA

A SPACE IRISHWOMAN

An expert in designing instruments to observe the Sun from space, she is currently the director of the Davos Observatory in Switzerland Switzerland.

She studies coronal mass ejections, solar winds and the Sun-Earth connection.



















STARS ALSO DIE

Final phase of a dying star, similar to our Sun, ejecting matter. The stars, much more massive than the Sun, explode as supernovae.

Image of the Little Ghost Nebula NGC 6369



JOCELAU BELL LITTLE GREEN MEN

She discovered pulsars in 1967 while writing her doctoral thesis, initially thinking that they could be signals from an extra-terrestrial civilization. The discovery led to the award of the Nobel Prize to her director. She was President of the Röyal Astronomical Society (UK). In 2018 she won the Special Breakthrough Prize in Fundamental Physics, the endowment of which she donated to grant scholarships to female students belonging to minorities. She thus created the Bell Burnell Graduate Scholarship.



NANDA REA MAGNETIC STARS

Researcher in High Energy Astrophysics and compact galactic objects. In 2014 she was awarded the prestigious Zeldovich Medal by the Committee on Space Research and the Russian Academy of Sciences for her invaluable contribution to the study of neutron stars and, in particular for discovering that meanetars particular, for discovering that magnetars can have highly variable magnetic fields.



She studies isolated white dwarfs in the final stages of stellar evolution and stellar explosions in white dwarfs -novae and supernovae- in binary systems. It also designs instrumentation for X-ray and gamma-ray missions.

YOU-HUA CHU PLANETARY NEBULAE

She studies the formation and death of massive stars. And investigates interactions between stars and the interstellar medium, including ionized regions, planetary nebulae and supernova remnants.















THE LIGHT

IN THE DARK

Pleiades star



SONIA DUFFAU BARRIERLESS ASTRONOMY

She conducts research on variable stars and chemical evolution in star clusters. Committed to supporting the scientific vocations of minorities, she is a great promoter of astronomy among young people with disabilities and indigenous peoples of Chile.



AUUIE 1 CANNON

THE MOTHER OF THE STELLAR SPECTRAL TYPES

The O.B.A.F.G.K.M stellar spectral classification system originated in the study she carried out on more than 225,000 stars. She was part of the famous Harvard female astronomers.



A multi-talented astronomer, she published more than six hundred works on stars, cosmology and reviews on the history and advances in astronomy. She held numerous leadership positions in different international associations. The asteroid 9271 bears her name.





Pioneer of the Institute of Astrophysics of Andalusia (IAA), she determined the period-luminosity-colour relationship for Delta Scuti stars. Teacher of the first generation of astronomy professionals at the IAA.









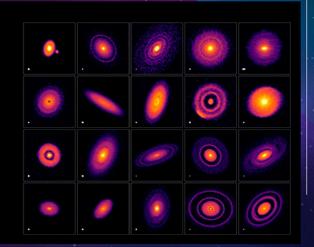








old molecular gas nd dust in rotoplanetary disks erceived by the LMA observatory. SHARP project.





HARIN ÖBERG DETECTING MOLECULES

Specialist in astrochemistry and its impact on planet formation. She has detected the first complex carbon molecule in a protoplanetary disk.



Pioneer in the study of circumstellar disks in young stars and accretion phenomena.



LUCIANNE WALHOVICZ THE MOST INCLUSIVE SPACE

She is co-founder of *The JustSpace Alliance*, an organization that brings together, in an interdisciplinary way, experts in science, law, anthropology, technology, social justice and the arts.



SARA SEAGER IN SEARCH OF OTHER

Deputy Chief Scientist for the TESS mission. Her research focuses on finding another Earth by searching for signs of life.













THE FLEA MARKET OF THE ELEMENTS

Pillars of Creation; The Eagle Nebula.



SILVIA TORRES PEIMBERT MEASURING CHEMICAL ABUNDANCES

A world leader in the study and determination of the abundance of chemical elements in the Universe, she has been president of the International Astronomical Union (IAU).



FRANCESCA MATTEUCCI

CHEMISTRY OF THE INTERSTELLAR MEDIUM

One of the leading developers of models of chemical evolution of the interstellar medium and galaxies. She has trained an entire generation in these subjects.



GRAŻYNA STASIÓSHA PHOTOIONIZATION PHYSICS

Expert in photoionization physics, a technique used to measure chemical elements in the interstellar medium. Of Polish origin, she is based in France and maintains close collaborations with Spain, Brazil, Mexico and Poland.



MERCEDES MOLLÁ CHEMICAL EVOLUTION MADE IN SPAIN

She is one of the few Spanish astronomers who has developed models of chemical evolution. Her interests range from the production of different types of atoms in stars and supernovae to the evolution of galaxies and their enrichment in elements heavier than hydrogen.





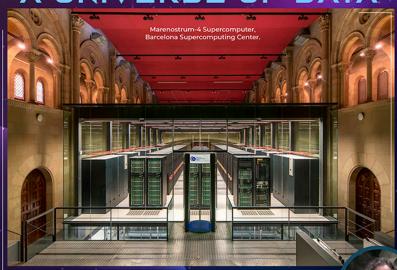








UNIVERSE OF DATA





JESSICA MINH CREATING AND BREAKING CODES

Co-discoverer of the rings of Uranus, she has developed astronomical software since the 1970s. She is a trans woman who is very active in raising awareness and defending this community.

FRANÇOISE GENOVA

ADVOCATE FOR THE FREEDOM OF ASTRONOMICAL DATA

She was director of the Strasbourg Astronomical Data Centre (France) for over twenty years and participated in the creation of the European Virtual Observatory.



TEACHING MACHINES TO SEE THE UNIVERSE

Pioneer in the application of latest-generation artificial intelligence algorithms to the analysis of astronomical data.



WHEN COMPUTERS WERE WOMEN

Their meticulous work analysing photographic plates from the Harvard Observatory at the end of the 19th century would lay the foundations for great astronomical discoveries including the expansion of the Universe.















LITHUANIAN ASTRONOMERS I



GRAŽINA TAUTVAIŠIENĖ

INITIATOR OF ASTROSPECTROSCOPY IN LITHUANIA

She introduced astronomical spectroscopic research in Lithuania. She was one of the first in the world to model the chemical evolution of the Milky Way and the Magellanic Clouds.

EDITA STONHUTÉ

STUDIES OF THE CHEMICAL COMPOSITION OF STARS IN THE GALAHY (INCLUDING STARS WITH PLANETS)

Her scientific interests focus on detailed studies of the chemical composition of galactic stars (including stars with planets) using high-resolution spectra. She organizes public lectures and training courses for all those who want to learn more about the Universe.

ERIHA PAHŠTIENĖ

ASTEROSEISMOLOGY, STUDIES OF VARIABLE STARS AND ECLIPSES OF BINARY STARS

Her fields of research encompass asteroseismology, photometry of variable stars and eclipsing binary stars, photometric observations of exoplanet transits, microlensing and rotating asteroids.



BEDATA MINHEVIČIŪTĖ

RESEARCH ON THE CHEMICAL COMPOSITION OF STARS IN THE GALACTIC FIELD AND OPEN CLUSTERS

She has carried out research on the chemical composition of stars in the galactic field and open clusters from high-resolution spectra. These studies are important for understanding the structure of our Galaxy and its evolution.



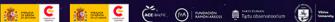


















LITHUANIAN ASTRONOMERS II



ZINAIDA GENOVAITĖ ŽILEVIČIŪTĖ-SVIDERSHIENĖ THE FIRST LITHUANIAN WOMAN TO OBTAIN A DOCTORATE IN ASTROPHYSICS

She contributed to the development of the Vilnius photometric system and created a method for determining the type and measuring the redshift of distant galaxies. She also distinguished herself as the director of the Vilnius Planetarium and the author of several popular books on astronomy. Asteroid number 154932 - Sviderskiene was named after her.

OGINSHYTĖ-PUZINIENĖ A BEACON OF SUPPORT FOR ASTRONOMY IN LITHUANIA

A prominent benefactor and pioneer of the 18th A prominent benefactor and pioneer of the 18th century, a woman ahead of her time, who played a significant role in the establishment of the prestigious Vilnius Academy Astronomical Observatory, one of the first observatories in Europe, leaving a lasting impact on the development of science in Lithuania.



STANISLAVA BARTAŠIŪTĖ FROM NEARBY TO FARAWAY STARS

One of the first female teachers of astronomy at Vilnius University. Recognized for her observational studies of kinematics of nearby stars and stellar populations of the Milky Way.

ROMUALDA LAZAUSHAITĖ

SCIENCE AND ASTRONOMY EDUCATION

Her scientific research is focused on galactic structure and open clusters, and she is actively involved in groups preparing for data analysis from the GAIA space satellite. She is interested in teaching STEM subjects and has participated in the preparation of the astronomy Olympiad for Lithuanian students.





















FROM STARS TO ESTONIAN

INDEPENDENCE



ANNA ARET HOT STARS

Specialises in modelling stellar atmospheres and spectra of hot stars, with a special focus on chemically peculiar stars. Her PhD focused on markury istorone PND tocused on mercury isotope separation in stellar atmospheres. As head of the Stellar Physics Department at Tartu Observatory, she and her team lead the analysis of lead the analysis of exoplanet-hosting hot stars for the ESA Ariel mission.





Specialises in radiation transfer in binary stars, spectral analysis of hot stars, and chemically peculiar stars. She has advanced numerical methods for calculating ion resonance line profiles and spectral line identification. Her work includes studying P (ygni-type profiles in stellar winds, shedding light on mass loss in hot supergiant stars.



LIIA HÄNNI FROM THE STARS TO THE GOVERNMENT

Contributed to astronomy through studies on stellar structure and atmosphere, with a focus on the chemical composition of giant stars, before transitioning to politics. She played a key role in Estonia's independence movement and constitution drafting and served as Estonia's Minister of Reforms from 1992 to 1995. Her political career emphasises democratic governance and digital participation.



HELLE JAANISTE 1943, VILJANDI (ESTONIA). POPULARISING SCIENCE

Worked on calculating trajectories for Sputnik satellites. Initiated and led the popular astronomy lectures at the Old Observatory in Tartu, Estonia, nurturing generations of astronomers. She also organised public observation nights, astronomy lectures, and annual gatherings for astronomy enthusiasts. She was awarded the 2013 Tiiu Silla Lifetime Achievement Award for Science Popularization.















PATCHWORK UNIVERSE

The Tartu Observatory in Töravere, Estonia, is a leading centre for astrophysics and space research. Through its participation in international projects and its outreach activity, it continues to inspire the next generation of astronomers.



she has discovered numerous cosmic structures and patterns, challenging the commonly accepted scale at which our Universe becomes homogeneous, as well as the current cosmological model. In addition, she advanced our understanding of the role of the cosmic environment and the cosmic web in the formation and evolution of galaxies and galaxy clusters She has discovered numerous cosmic structures and



FROM BLACH HOLES TO PRESIDENT OF THE ESTONIAN PARLIAMENT

A member of the Estonian Academy of Sciences, specialises in numerical simulations of the evolution of compact objects (such as neutron stars, white dwarfs and black holes) and the nature awarts and black holes) and the nature of transient phenomena in the Universe, observed across various light frequencies. She was the president of the Estonian Parliament (2003-2006, 2007-2014) and led efforts for Estonia to become a member of the European Space Agency.

EVOLUTION OF COSMIC STRUCTURES

Shaped our understanding of the formation and evolution of cosmic structures, pioneering simulations of the non-linear evolution of the Universe. Her work also linked these simulations with observations, shedding light on the nature of dark matter and dark energy. She further unveiled the connection between the evolution of galaxies and the large-scale density field surrounding them.

MARE RUUSALEPP PROMOTING SCIENCE

Expert in non-stationary stars, Be star rotation, and nova chemistry. She has significantly contributed to science outreach. She co-founded and led the Stellaarium visitor centre at Tartu Observatory, promoting science education. Recognized for her efforts, she received the 2008 Estonian Science Popularization. Award and the 2015 Estonian Science Popularization. Estonian Science Popularization Award and the 2015 Tiiu Silla Lifetime Achievement Award for popularising science and technology.















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