



Výstava Above and Beyond na Slovensku a aktivity v Prírodovednom múzeu SNM

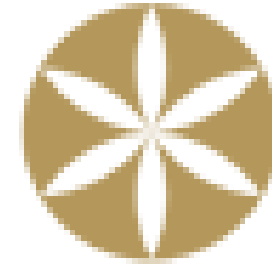
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Fakulta matematiky, fyziky a informatiky, Univerzita
Komenského v Bratislave

Astronomické Slovensko
25.-27.9.2019

Učebno-výcvikové zariadenie UPJŠ

- **Doktorand** – Fakulta matematiky, fyziky a informatiky, Univerzita Komenského v Bratislave, školiťel' – doc. RNDr. Juraj Tóth, PhD.
- **Výskum** – astročasticová fyzika, vysokoenergetické kozmické žiarenie, gama žiarenie
- **Vyučovanie** – astronómia a astrofyzika (3. ročník, bakalár), astronómia a meteorológia, teoretická astrofyzika
- **Iné aktivity** – Astronomický krúžok Prírodovedné múzeum SNM - vedúci, organizácia Above and Beyond v Bratislave, populárne prednášky pre verejnosť, verejné pozorovania, organizácia festivalov – Noc výskumníkov, Noc múzeí a galérií
- **Členstvá** - Slovenská astronomická spoločnosť pri SAV, Slovenské planetária O.Z.



SLOVENSKÉ
NÁRODNÉ
MÚZEUM

Prírodovedné múzeum SNM



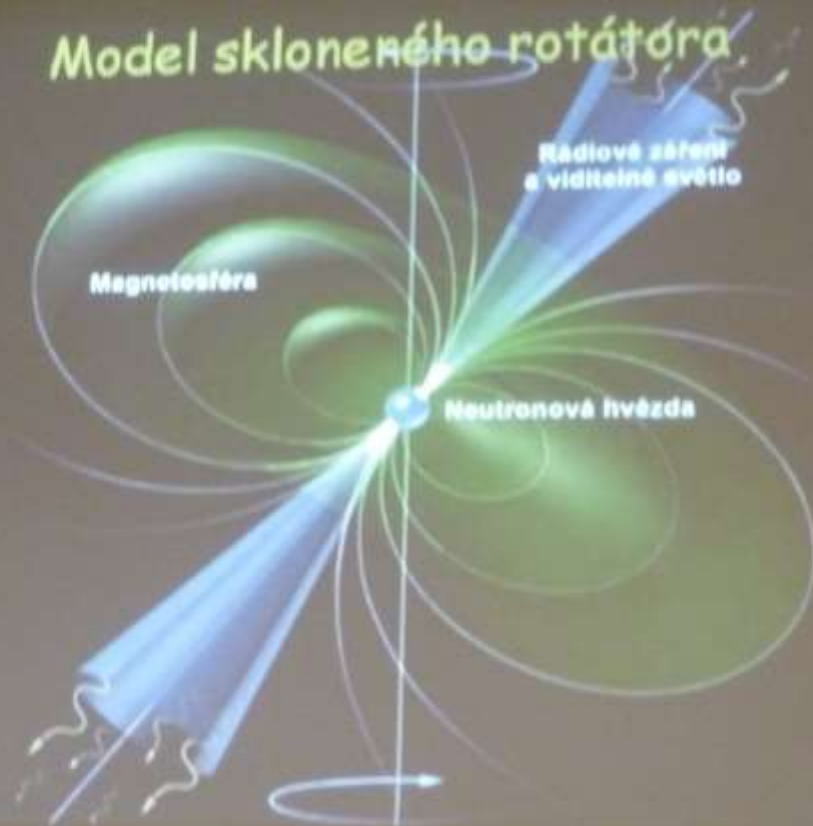
- Každý druhý štvrtok počas školského roka, od 17:30 v Objavovni (3. poschodie)
- Pozvaná prednáška
- Vstup je voľný, <http://www.snm.sk/?prirodovedne-muzeum-podujatia&clanok=astronomicky-klub-snm-pm>

A photograph of a dark, possibly black, door set within a white frame. Centered on the door is a light-colored, oval-shaped sign. The sign has the word "objavovňa" written on it in a dark, sans-serif font. The sign is held in place by two small screws, one on each side. The door is slightly ajar, revealing a dark interior space. The white frame of the door has a decorative, multi-lined border. The ceiling above the door is white and has a single light fixture visible.

objavovňa



Model skloneného rotátora







Krúžok mladých astronómov 2019 / 2020



prvé stretnutie štvrtok 5. september o 15:30
Objavovňa SNM-PM

- Bezplatný krúžok pre deti od 10 rokov (po dohode aj mladší)
- Vedúci: Mgr. Patrik Čechvala, Adam Okruhlica









13



INOC VÝSKUM
NIKOV III

SOM VEDEC
PÝTAJTE SA MA









Vás pozývajú prednáška
na astronomickú prednášku



SLOVENSKÉ NÁRODNÉ MUZEUM
PRÍRODOVEDNÉ MUZEUM

ASTRONOMICKÁ ŽATVA

RNDr. Jiří G R Y G A R, CSc.

FYZIKÁLNÍ ÚSTAV AV ČR, PRAHA

VEĽKÁ POSLUCHÁREŇ F1, Pavilón F1, FMFI UK, Mlynská dolina 1, Bratislava
piatok 15. DECEMBRA 2017 o 17.30 HOD. VSTUP VOĽNÝ









Above and Beyond na Slovensku









IS THERE LIFE ELSEWHERE
IN THE UNIVERSE?



WHAT IS THE SIZE AND
STRUCTURE OF THE UNIVERSE?

100 •



HOW DO STARS
FORM AND SHINE?

EXHIBITION

ABOVE AND BEYOND

MAKING SENSE OF THE
UNIVERSE FOR 100 YEARS



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CONTRIBUTIONS
FROM



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<http://100exhibit.iau.org/>

<https://www.astro.sk/iau100/index.php/projekty/vystava-above-and-beyond/>

https://twitter.com/iau_org/status/1097405505738366982

<https://www.iau-100.org/above-and-beyond-in-bratislava>











WORLDWIDE COLLABORATIONS

International collaboration has supported the most ambitious of astronomical discovery projects. The Square Kilometer Array (SKA) is a paradigm example of a worldwide collaboration between Europe, Africa, Asia, and North America in partnership with CSIRO. It is the most ambitious radio astronomy project on Earth, consisting of the antennas located in southern Africa.

A facility where the James Webb Space Telescope (JWST) is currently scheduled for launch in 2021 will be a joint effort between NASA, ESA, and CSA. Organizations, engineers, and scientists from across the world are also working together on the Square Kilometer Array, the world's largest radio telescope that will eventually span a collecting area of over 300 square kilometers.

International work on space exploration, design, and physical sciences is continuing to expand as the frontiers of science advance.



SKA RADIO SPACE TELESCOPE ARRAY



TRANSFORMATIVE INFRASTRUCTURE



15 APRIL 2017
SUBARU TELESCOPE
MADE IN JAPAN



SUBARU TELESCOPE



EXTREMELY LARGE TELESCOPE



THE EARTH, THE SKY, AND CULTURE



INTERNATIONAL SPACE STATION



THE EARTH



THE EARTH



THE EARTH

SOLAR SYSTEM MISSIONS

- > ECHOHART
- > DAWN
- > CUBOP
- > BOYSCOLIMBO
- > CORIS-REX
- > EUROPA CLIPPER

>>>

JUNO



ROSETTA





ABOVE AND BEYOND

MAKING SENSE OF THE
UNIVERSE FOR 100 YEARS

TOTAL SOLAR ECLIPSE 29 MAY 1919

Once a total solar eclipse is witnessed, such an event cannot be forgotten. For centuries, total solar eclipses were perceived as frightening, almost mystical events. The short period during which day turns into night is a spectacle caused by the Moon blocking the Sun.

A century ago, this phenomenon was used to successfully test the key prediction of Albert Einstein's General Theory of Relativity. Two expeditions led by Eddington & Dyson (Dyson being a pseudonym) and Crommelin (Crommelin being a pseudonym) were sent out to observe an eclipse in May 1919. The observations confirmed that the light of stars around the Sun is indeed deflected due to the solar mass in the amount predicted by Einstein's theory.

STARLIGHT
REFRACTION

40

The
Skylark
Space







WHAT ARE STARS?

Stars are glowing spheres of gas. Cecilia Payne-Gaposchkin was the first to suggest that stars are primarily made of hydrogen and helium H₂. As a star's centre is a dense, burning core where nuclear fusion occurs. Anticipated by Arthur Eddington in the 1920s, the nuclear processes that power stars were only fully proven in the late 1930s by Hans Bethe.

CHANDRASEKHAR LIMIT

>1.4 M_☉

Named after the Indian-American astrophysicist Subrahmanyan Chandrasekhar, the Chandrasekhar limit is a theoretical maximum mass for a white dwarf star. Stars that exceed this limit will collapse under their own gravity, leading to a supernova explosion or the formation of a black hole.

STELLAR ENERGY SCHEME



STELLAR ENERGY

Our long-held belief was that stars were like giant incandescent light bulbs. But in the 1920s, Cecilia Payne-Gaposchkin showed that stars are primarily made of hydrogen and helium. This meant that the energy source of stars was not incandescence, but nuclear fusion. The fusion of hydrogen into helium releases energy, which is what powers stars.

STELLAR COMPOSITION

The composition of stars is primarily hydrogen and helium, with small amounts of heavier elements. The relative amounts of these elements are determined by the star's age and the environment in which it formed. The composition of stars is a key factor in determining their evolution and ultimate fate.





THE GREAT DEBATE

100

ABOVE AND BEYOND

MAKING SENSE OF THE UNIVERSE FOR 100 YEARS



TOTAL SOLAR ECLIPSE
29 MAY 1919

100

STARLIGHT REFRACTION

100

The Skylark Space



THE HISTORY OF LIFE

100





COSMIC MICROWAVE BACKGROUND RADIATION (CMBR)



100
PERCENT
OF THE
UNIVERSE



A relic from the Big Bang, known as the Cosmic Microwave Background (CMB), is the afterglow of the early universe. It is a uniform glow of microwave radiation that fills the universe. The CMB is the oldest light we can see, and it provides a snapshot of the universe as it was 380,000 years after the Big Bang. The CMB is the most uniform and isotropic radiation in the universe, and it is the most accurate measurement of the universe's temperature.

12,380
2,099
~32 BILLION L.Y.
21.3 BILLION KM
1,920
3,812 + 8
100-200 BILLION

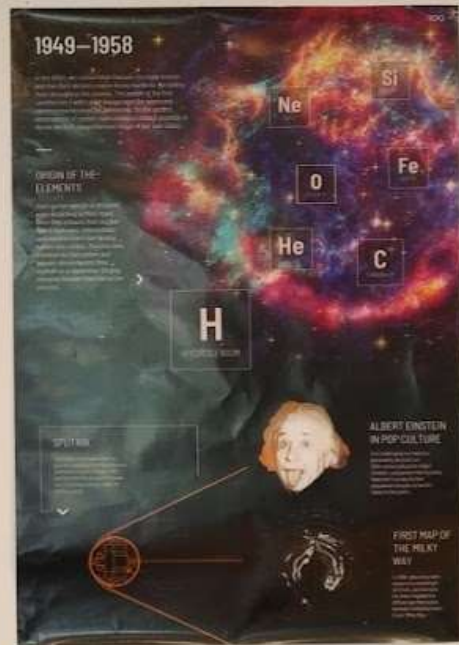




ESO Supernova

Planetarium & Visitor Centre





Ďakujem za pozornosť