



21
LISTOPAD

DRUGI DAN

15:00 7 zapanjujućih istina o Svemiru, dr. sc. Dario Hrupec, Odjel za fiziku,
Sveučilište J. J. Strossmayera u Osijeku

16:15 Muzika atoma - od kvantnih računala do putovanja kroz vrijeme,
dr. sc. Dalibor Paar, Fizički odsjek PMF-a

Posjet STEM festivalu

iz sastava EU projekta STEM
akademija
u kampusu Visokog učilišta Algebra

Projekt Svemir i mi

21. listopada 2022.

Svemir se širi ubrzano

TAMNA MATERIJA
TAMNA ENERGIJA
RICHARD P.

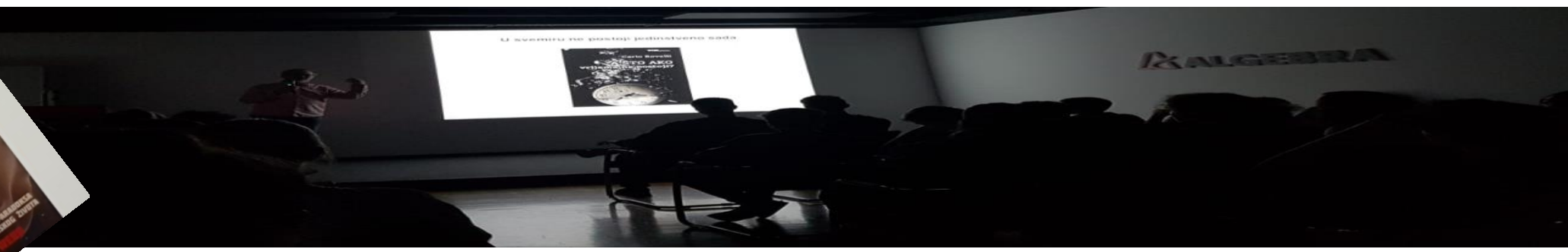
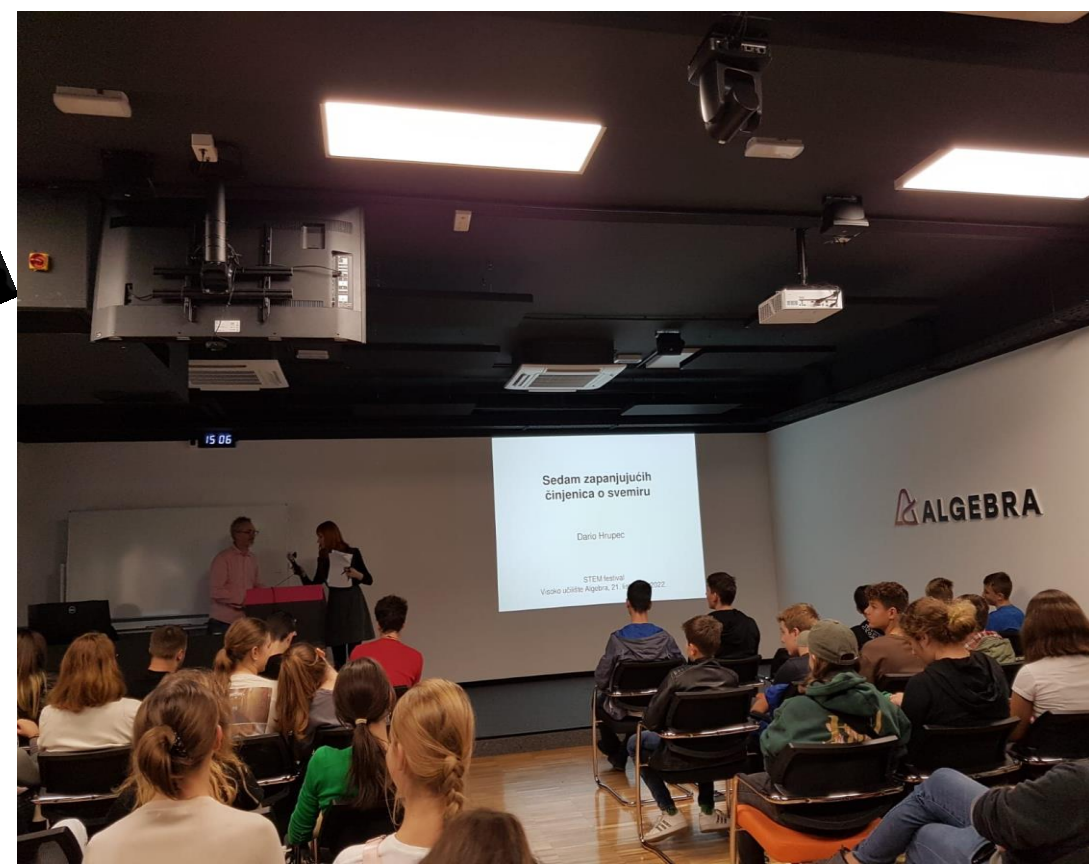
U svemiru ne postoji jedinstveno sada

Carlo Rovelli
KAKO
vrijeme ne postoji

U svemiru smo (možda) sami

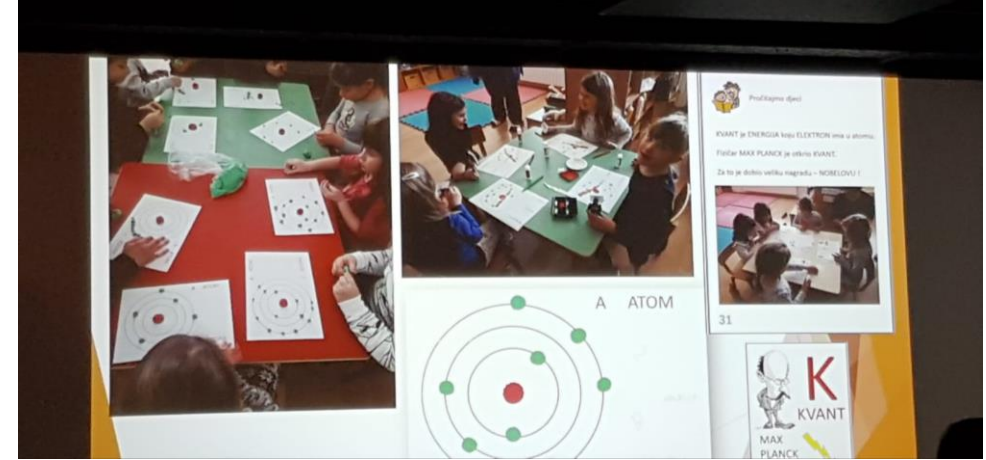
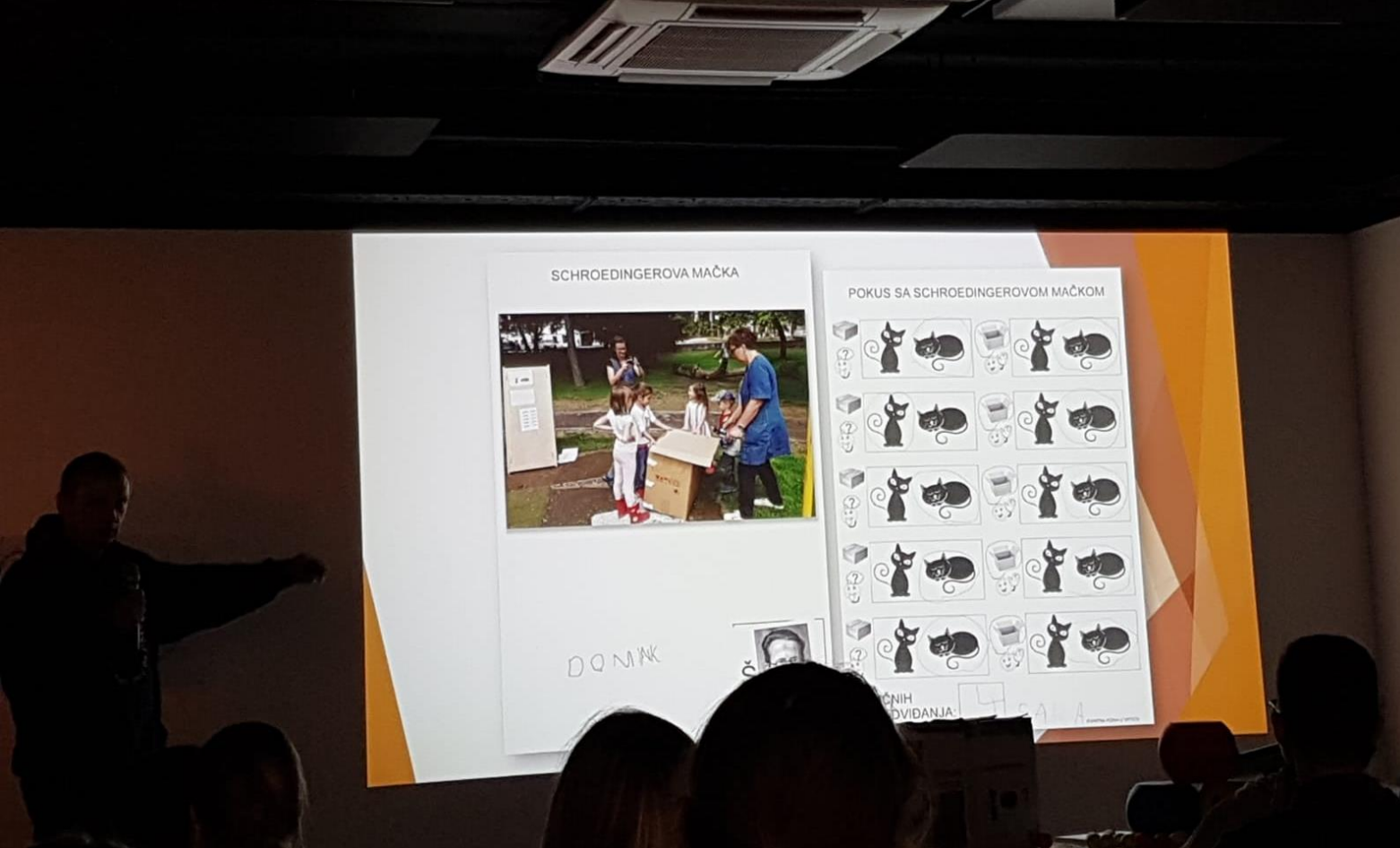
GDJE SU
VANZEMALCI

DR BARTON PHELPS
I POKRETI GURUČELIŠTA ZVJETA



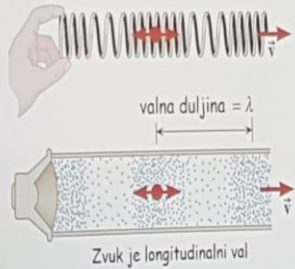






Valovi

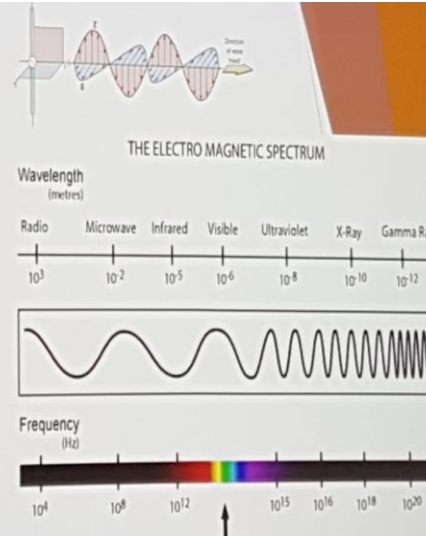
- ▶ Valovi na vodi
- ▶ Valovi zvuka



Zvuk je longitudinalni val

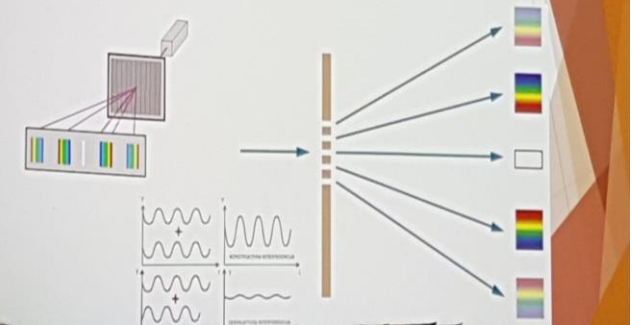
Valovi

- ▶ I svjetlost je val. Elektromagnetski val.
- ▶ Kao i valove zvuka, opisujemo ju s valnom duljinom i frekvencijom.



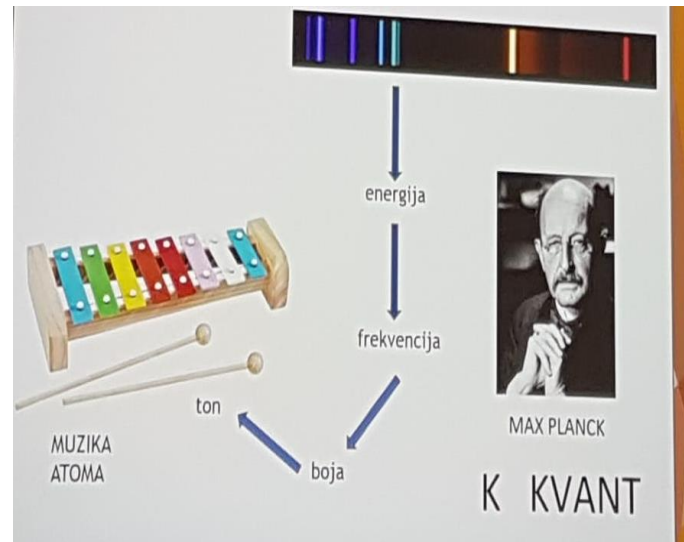
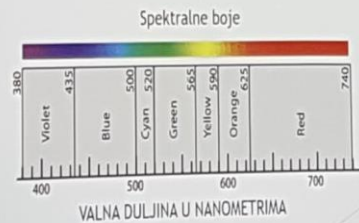
Atomski spektar promatran kroz difrakcijsku rešetku

- ▶ Niz paralelnih pukotina koji razlučuje svjetlost na valne duljine



Sunce ili žarulja emitiraju valove svjetlosti

- ▶ Koje valne duljine, odnosno frekvencije?
- ▶ Spektar! Pogledajmo spektar bijele svjetlosti
- ▶ Boja = određena frekvencija



A ATOM
J JEZGRA
E ELEKTRON

K KVANT

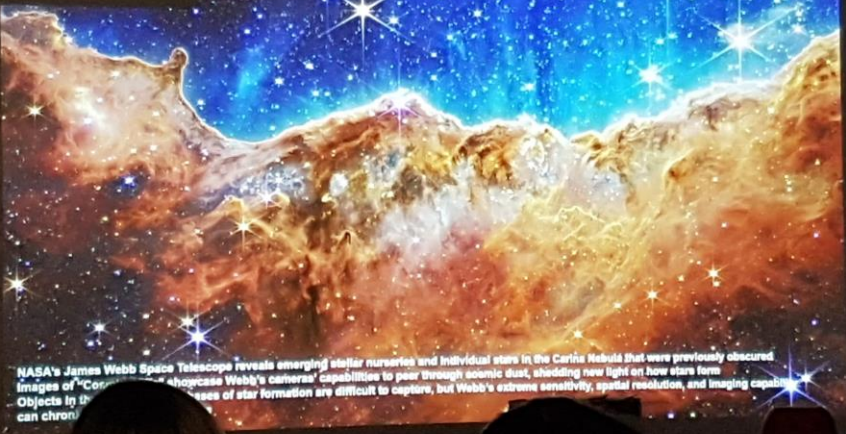
Uveo je koncept kvanta energije - osnove kvante fizike. Proučavajući zračenje crnog tijela došao je do revolucionarne ideje (1900.) da oscilator emitira energiju u diskretnim kvantima (nasuprot klasičnoj teoriji).

Max Karl Ernst Ludwig Planck (1858-1947)

Kvantnofizikalno objašnjenje linija u spektru

Kvantna energija fotona $E = h f$ val frekvencije f

WEBB
SPACE TELESCOPE



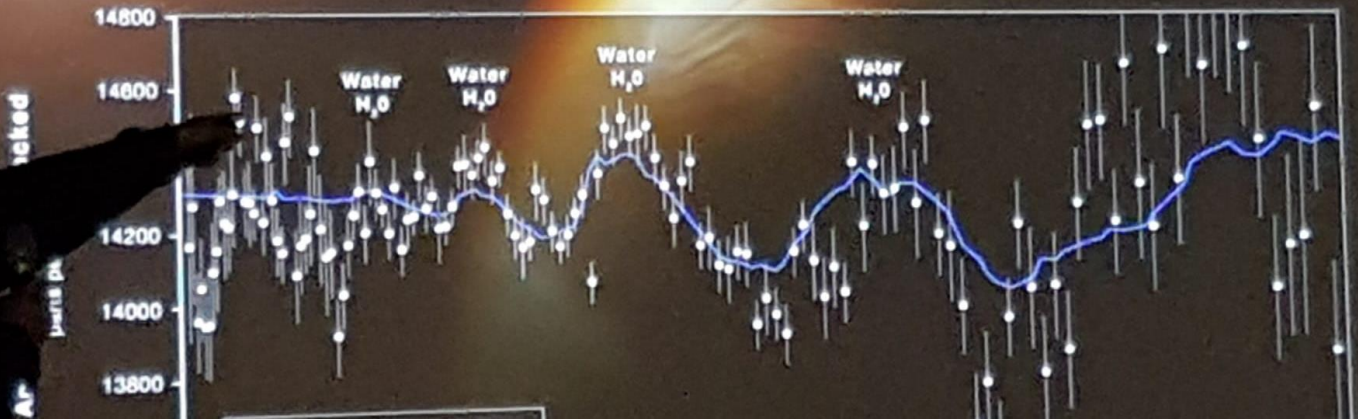
NASA's James Webb Space Telescope reveals emerging stellar nurseries and individual stars in the Carina Nebula that were previously obscured. Images of "Cometary" structures showcase Webb's camera's capabilities to peer through cosmic dust, shedding new light on how stars form. Objects in the process of star formation are difficult to capture, but Webb's extreme sensitivity, spatial resolution, and imaging capabilities can chronicle their evolution.

HOT GAS GIANT EXOPLANET WASP-96 b ATMOSPHERE COMPOSITION

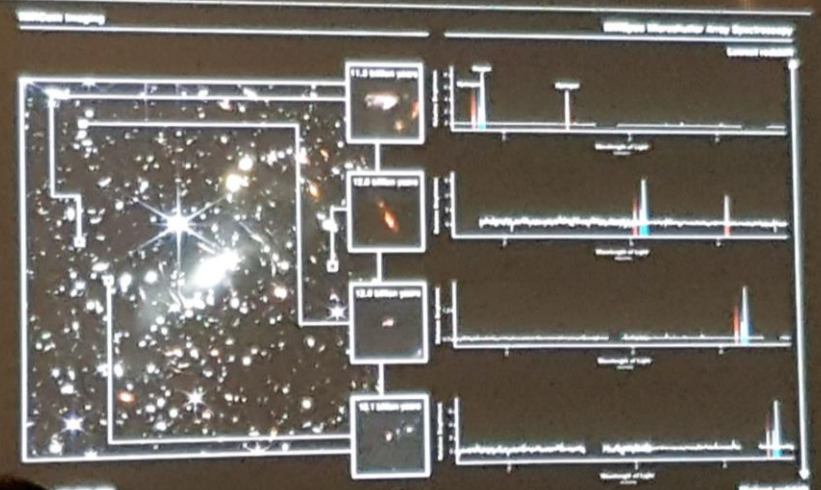
WEBB
SPACE TELESCOPE

NIRISS | Single-Object Slitless Spectroscopy

Atmosfera planeta udaljenog 1150 svjetlosnih godina

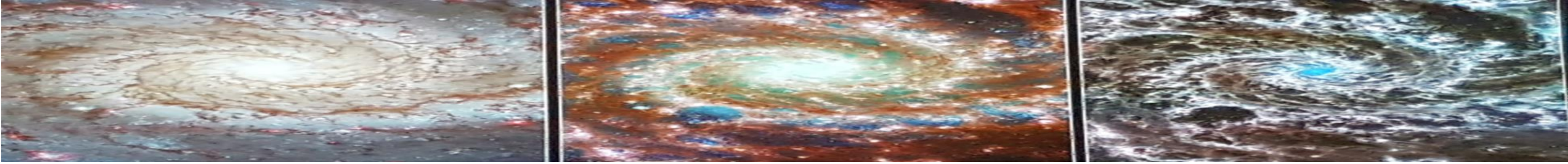


GALAXY CLUSTER SMACS 0723 WEBB SPECTRA IDENTIFY GALAXIES IN THE VERY EARLY UNIVERSE









Posjet STEM festivalu iz sastava EU projekta STEM akademija Visokog učilišta Algebra, realiziran je odabirom tema u sastavu projekta **Svemir i mi 2022./2023.**

U posjetu je sudjelovalo ukupno 24 učenika iz 7.A, B, C, D i 8.A, C, D razreda OŠ Žuti brijeg uz pratnju pedagoginje Marije Mihaljević te vodstvo Karle Vajdić, prof. i Emine Mutabžija-Orešković, prof.

