



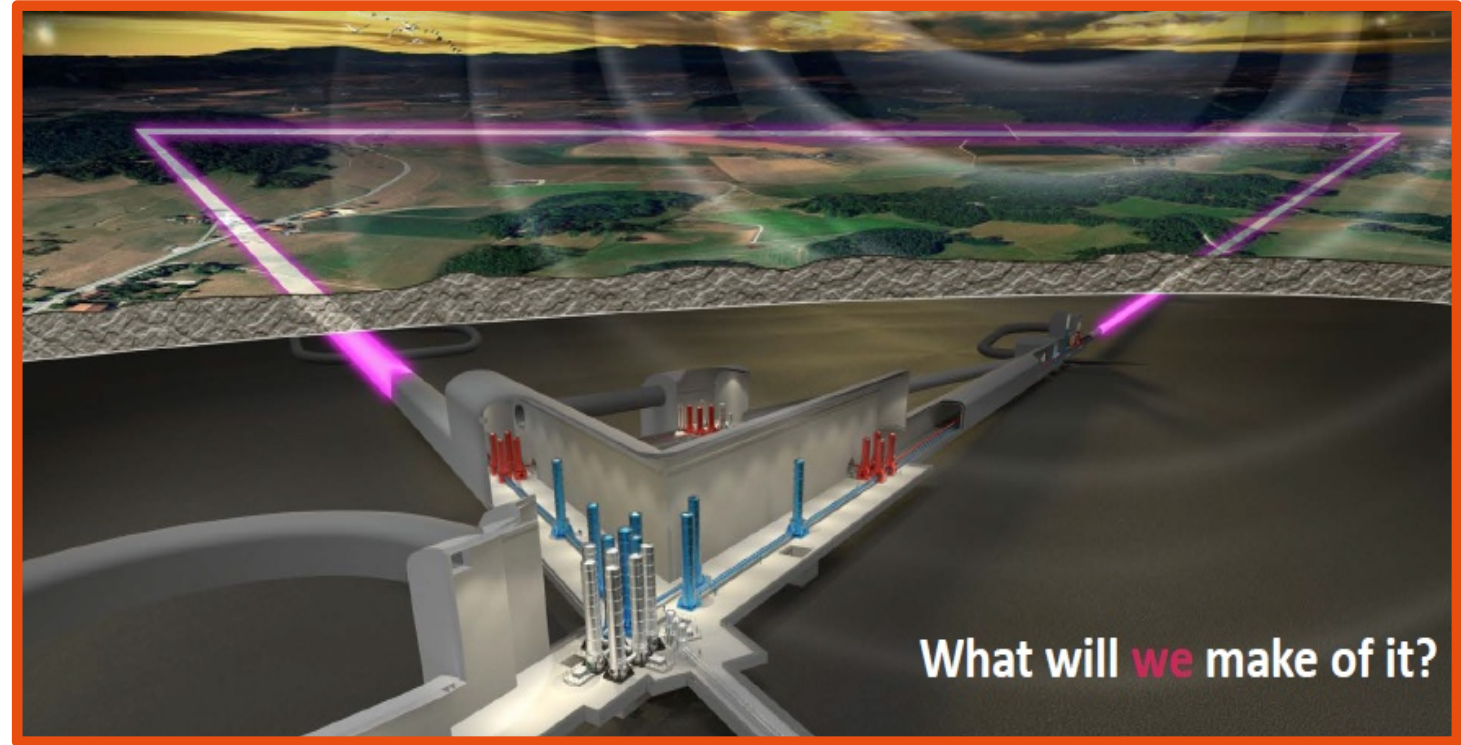
One year of the Einstein Telescope Education Centre (ETEC)

Gideon Koekoek

XV Einstein Telescope Symposium
26th - 30th of May 2025,
Bologna

Einstein Telescope

- .. A new window to the universe
- .. technological spin-off
- .. collaboration between countries
- .. attractor for talent
- .. connecting point for talent



Connection

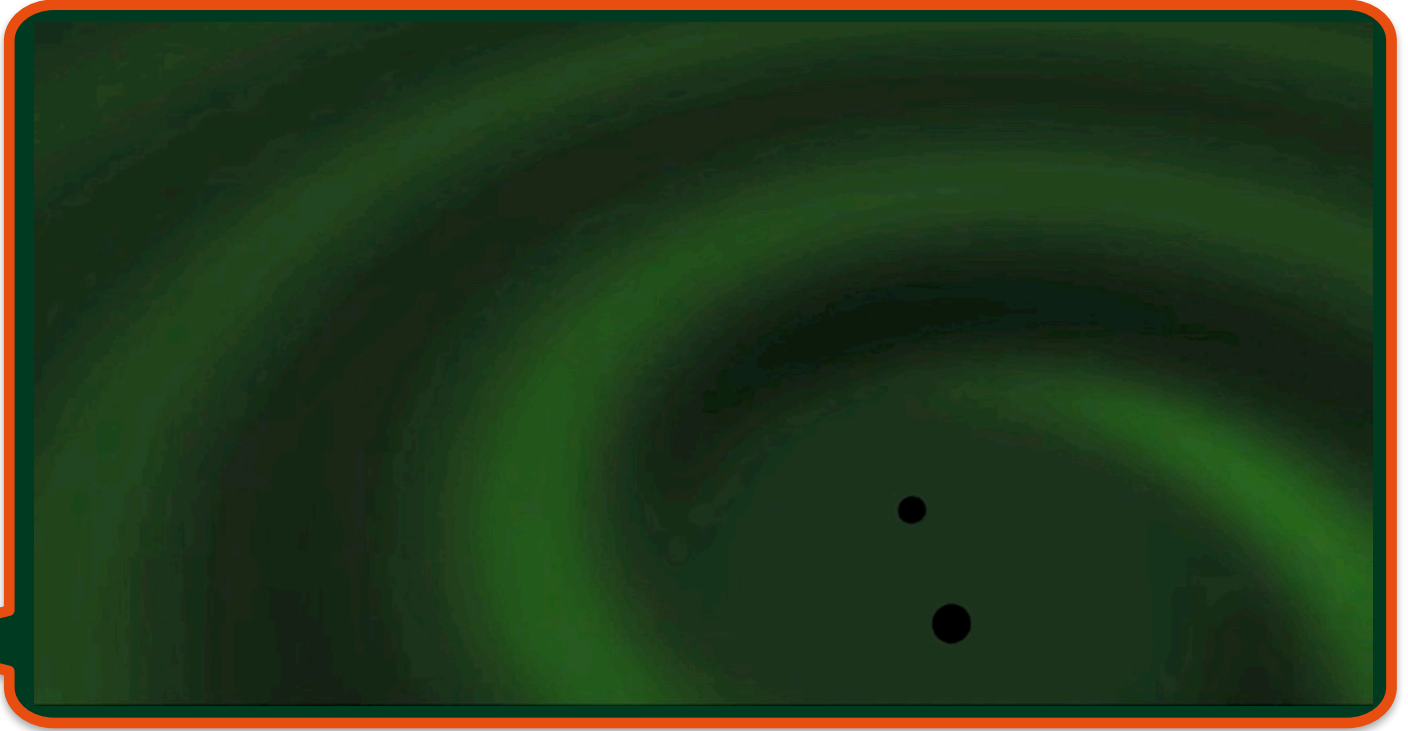
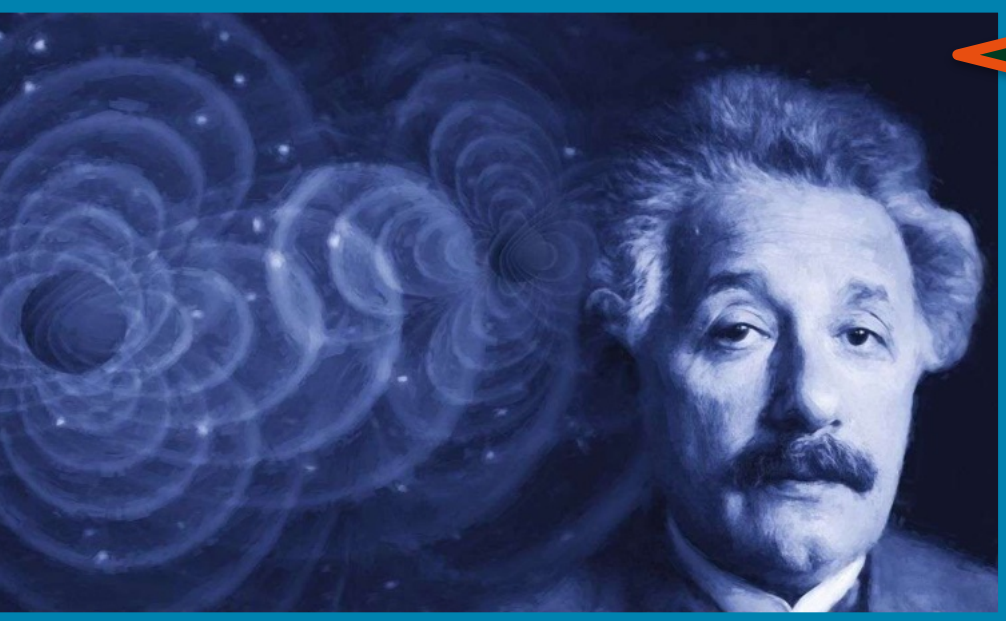
Academia

Technology & industry

Education

Einsteins' General Relativity

Spacetime is a 4dimensional
pseudo-Riemannian manifold



See the universe in new ways:

Stars, black holes, matter and energy,
early universe, big bang itself.

Can we offer Einstein Telescope to secondary education?

Einstein Telescope is too difficult for secondary education

Einstein Telescope is too niche.

Examenprogramma natuurkunde vwo

Het eindexamen

Het eindexamen bestaat uit het centraal examen en het schoolexamen.


Het examenprogramma bestaat uit de volgende domeinen:

Domein A	Vaardigheden
Domein B	Golven
Domein C	Beweging en wisselwerking
Domein D	Lading en veld
Domein E	Straling en materie
Domein F	Quantumwereld en relativiteit
Domein G	Leven en aarde
Domein H	Natuurwetten en modellen
Domein I	Onderzoek en ontwerp

A typical curriculum has ~ 80% overlap with Einstein Telescope science!

The Einstein Telescope Education Centre



 Einstein Telescope

News

Discovery Museum Kerkrade gets education centre about the Einstein Telescope

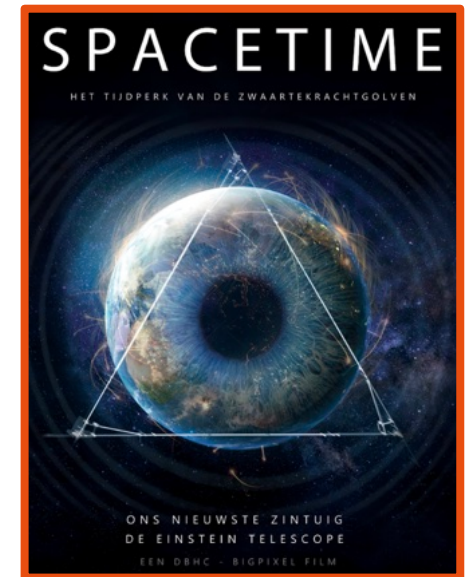
The 'Einstein Telescope Education Centre', or ETEC for short: this is the name of the education centre that the Dutch Discovery Museum Kerkrade will set up in its five-storey Cube building. Schoolchildren can work there on teaching materials based on current research on the Einstein Telescope. In addition, ETEC will provide a stage for at least three years from school year 2024-2025 to get acquainted with engineering and science education.

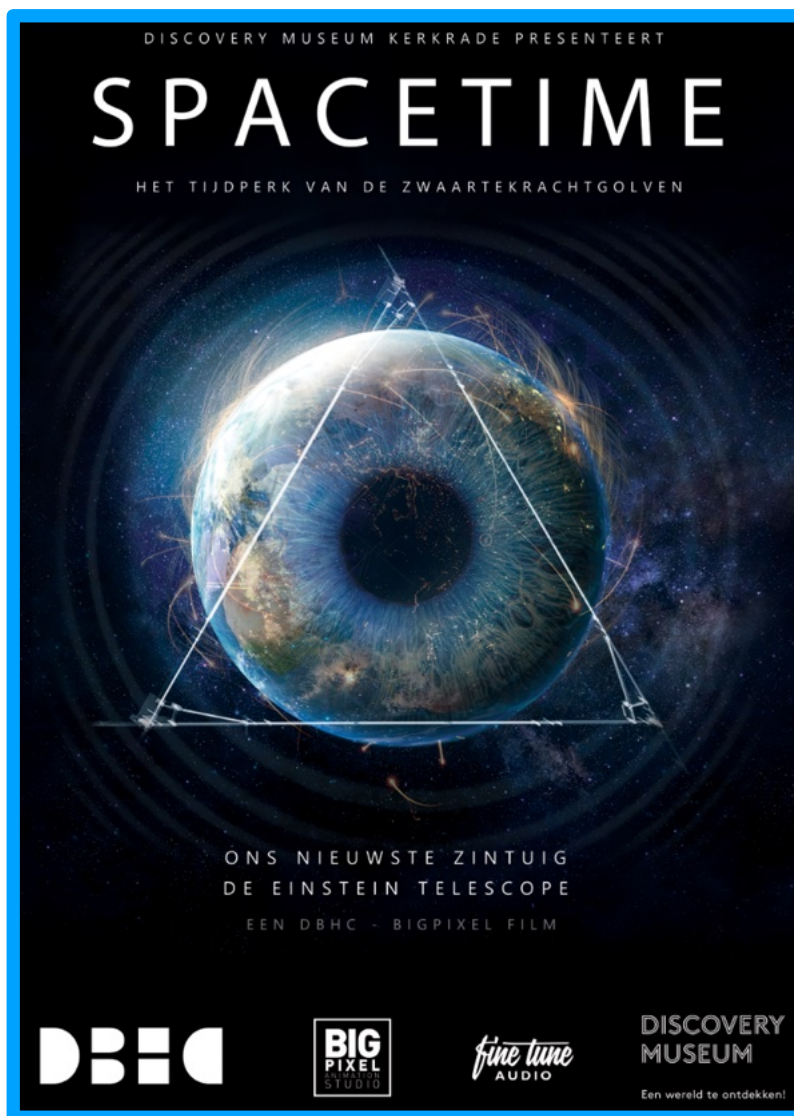


www.einsteintelelescope-emr.eu/blog/2024/06/26/einstein-telescope-education-centre-officieel-geopend/



Scene taken from the
Dutch Black Hole
Consortium planetarium
movie “Spacetime”





Part 1: Watch 3D-movie



Part 2: Follow interactive lecture



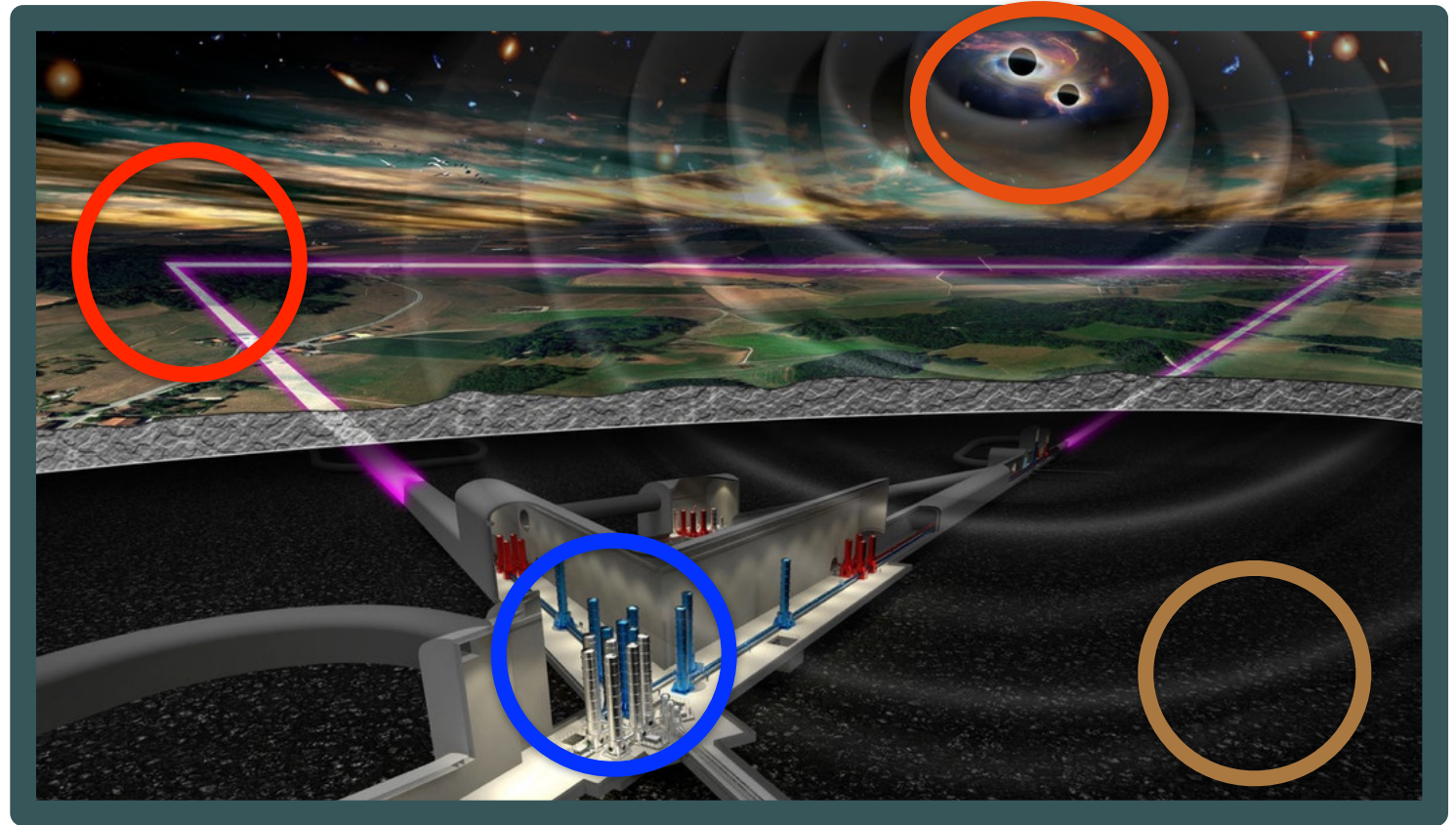
Part 3: do workshops



Part 4: Report on findings



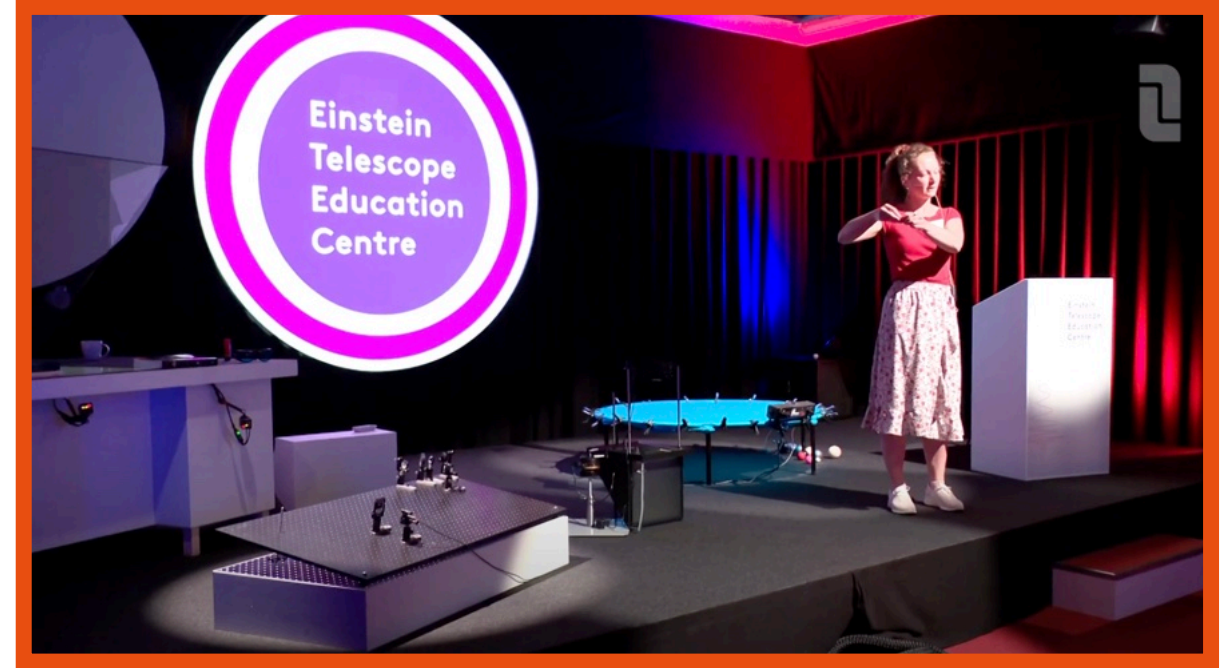
- **Interferometry**
Perform distance measurements using laser light
- **Noise mitigation**
Use Newtonian mechanics to dampen vibrations
- **Data-analysis**
Find and identify black hole collisions in data
- **Geofysica**
Acoustic investigations of soil



Einstein Telescope is perfectly suitable for school classes!

ETEC: been running for a year now.

- About 25 classes have visited ETEC, mostly from the Netherlands/Limburg. This amounts to about 500 students.
- Reactions have been very positive, both from teachers as from students
- ETEC is in talks to have structural visits from Germany and Belgium classes as well
- In O(weeks), ETEC will be opened to general public as well
- (prospective): ETEC @ home is being developed by UM and the Leuven Gravity Institute
- (prospective): grant is pending to hire a researcher to do measuring of efficacy of ETEC.





Thank you!

Einstein Telescope Education Centre:
www.discoverymuseum.nl/activiteiten/etec/

