



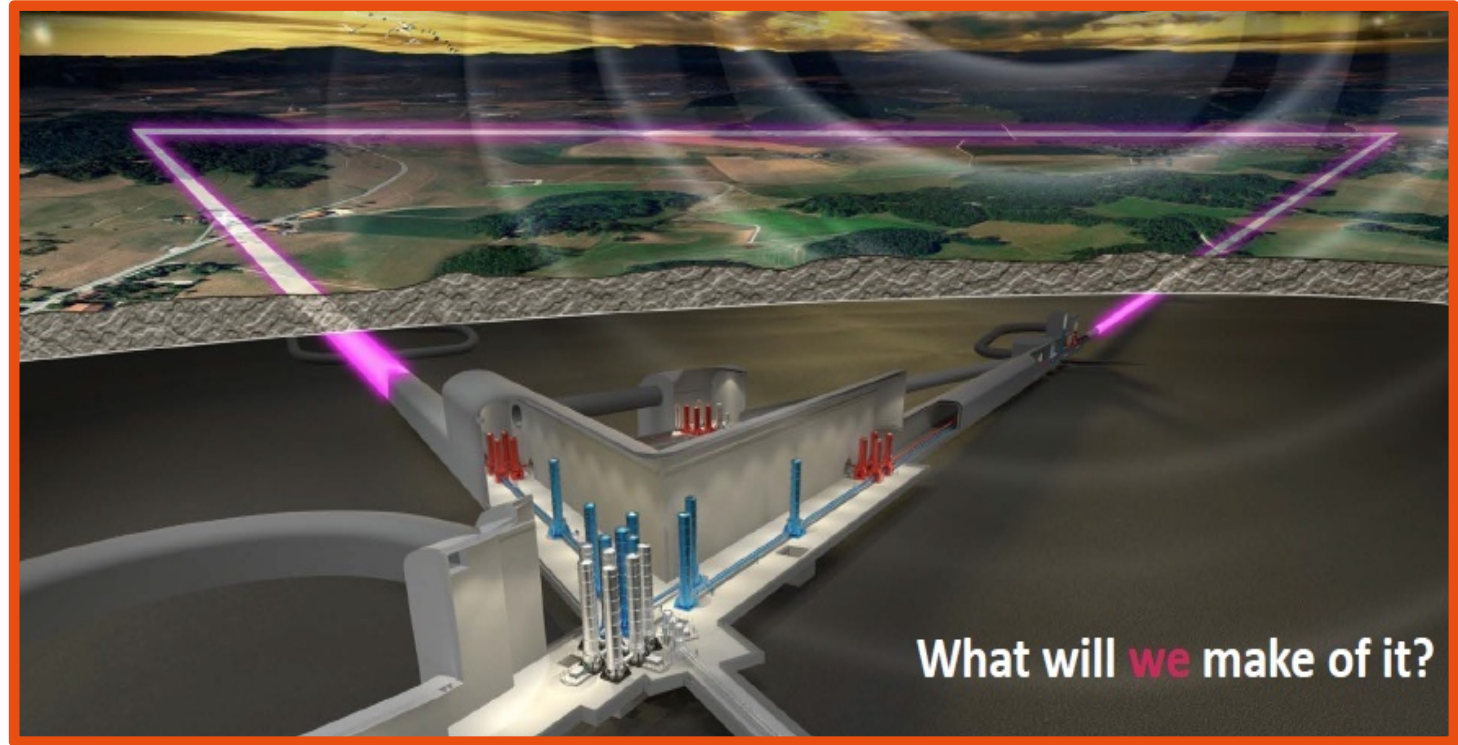
**A European Summer school for teacher  
professionalisation in Einstein Telescope science**

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



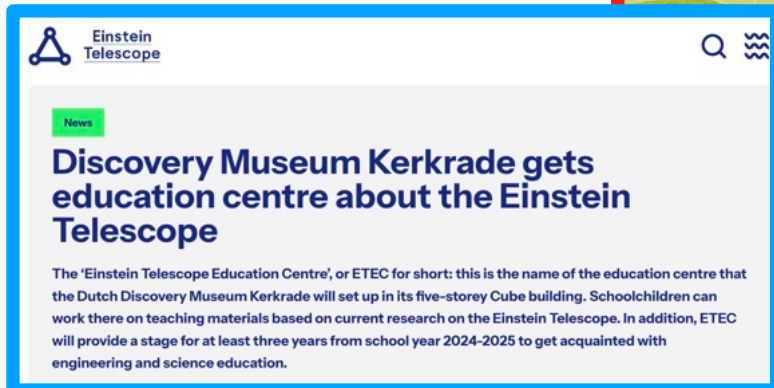
**Connection**

Academia

Technology & industry

Education

# Proof of principle: the ETEC



[www.einsteintelelescope-emr.eu/blog/2024/06/26/einstein-telescope-education-centre-officieel-geopend/](http://www.einsteintelelescope-emr.eu/blog/2024/06/26/einstein-telescope-education-centre-officieel-geopend/)

# MaGIC: European teacher training

- ~ 30 high school teachers from the countries around EMR-region.
- 7 days, 6 nights, local hosting in EMR
- Training in physics, technology, and didactics
- Back home: start local teacher communities



 **Maastricht University**

Einstein Telescope Education Centre 

# MAGIC

**MAASTRICHT GRAVITATIONAL INSPIRATION CURRICULUM**  
17 - 23 AUGUST 2025 | MAASTRICHT, THE NETHERLANDS

An all-in summer course for teachers, on the physics of the Einstein Telescope and how to effectively teach this in upper high school physics classes.

# MaGIC week programme: themes and activities

- **Mornings:** Theory (“what is the physics”?).
- **Afternoons:** Didactics (“How do I tell this to my students”?).
- **Evenings:** Social activities (“Building learning communities”).



# MaGIC week programme: themes and activities

Day	Theme/Topics	Activities	Location(s)
Sunday	Arrival and Welcome	<ul style="list-style-type: none"> <li>⦿ Reception and registration of MaGIC participants</li> <li>⦿ Welcome dinner</li> </ul>	Maastricht
Monday	Relativity Theory and Gravitational Waves	<ul style="list-style-type: none"> <li>⦿ Visit to Discovery Museum and ETEC</li> <li>⦿ Lectures on relativity theory and gravitational waves, and their history</li> <li>⦿ Workshops on didactics</li> </ul>	ETEC
Tuesday	Practicals in Class	<ul style="list-style-type: none"> <li>⦿ Viewing of the film <i>SpaceTime</i></li> <li>⦿ Workshops on in-class practicals (interferometry, data analysis, geophysics, noise reduction)</li> <li>⦿ Practical discussion</li> </ul>	ETEC
Wednesday	Measuring Gravitational Waves	<ul style="list-style-type: none"> <li>⦿ Tour of ETpathfinder and laboratories</li> <li>⦿ Lectures on measurement techniques and instrumentation</li> <li>⦿ Workshops on instruments and educational app on measurement techniques</li> <li>⦿ Dinner in Maastricht</li> </ul>	ETpathfinder, Onze Lieve Vrouwe Plein
Thursday	Scientific Maastricht & Limburg	<ul style="list-style-type: none"> <li>⦿ Guided tour of Gouvernement</li> <li>⦿ Lectures on diversity and the societal role of research</li> <li>⦿ Workshops on overcoming student barriers</li> <li>⦿ Guided tour of Maastricht</li> </ul>	Gouvernement, Het Pesthuysp, City Park
Friday	Multimessenger Astronomy & Local Learning Communities	<ul style="list-style-type: none"> <li>⦿ Lectures on <i>multimessenger astronomy</i></li> <li>⦿ Workshops on sharing best practices and curricula</li> <li>⦿ Workshop on <i>Local Learning Communities</i></li> <li>⦿ Farewell dinner</li> </ul>	ETEC, Maastricht
Saturday	Farewell and Departure	<ul style="list-style-type: none"> <li>⦿ Conclusion of the MaGIC week program</li> </ul>	Hotel

# Communication is in full swing

- **Website has been created**

Hosted under Maastricht University, and lists the programme, speakers, and registration information.

[www.maastrichtuniversity.nl/events/maastricht-gravitational-inspiration-curriculum-magic](http://www.maastrichtuniversity.nl/events/maastricht-gravitational-inspiration-curriculum-magic)

- **Flyer has been distributed**

Created by the graphical professionals, distributed widely (e.g. by the Netherlands embassy's)

- **Registrations are now open**

Taking in first registrations; about 50% of the spots are now filled. More welcome:

[maastrichteducation.qualtrics.com/jfe/form/SV\\_0HOTG3ITAdBcIVE](https://maastrichteducation.qualtrics.com/jfe/form/SV_0HOTG3ITAdBcIVE)

- **Official kick-off event: 19th of June**

Opening by deputy governor Stephan Satijn and GK, at Chateau Neercanne at the Belgian border.



**MAGIC**

**MAASTRICHT GRAVITATIONAL INSPIRATION CURRICULUM**  
17 - 23 AUGUST 2025 | MAASTRICHT, THE NETHERLANDS

**An all-in summer course for teachers, on the physics of the Einstein Telescope and how to effectively teach this in upper high school physics classes.**

Since the first discovery of gravitational waves in 2015, gravitational wave detectors around the world have opened a treasure trove of the Universe! The Einstein Telescope, the next generation detector, is about to be built and will make Europe the heart of scientific discoveries.

This offers great opportunities for teachers, as the science and technology of gravitational waves have a surprisingly strong connection with secondary school curricula of physics. Einstein Telescope is ideally suited to show students that they can understand the newest discoveries, practice the physics of their high school curricula in an exciting setting, and to play an active role in it.

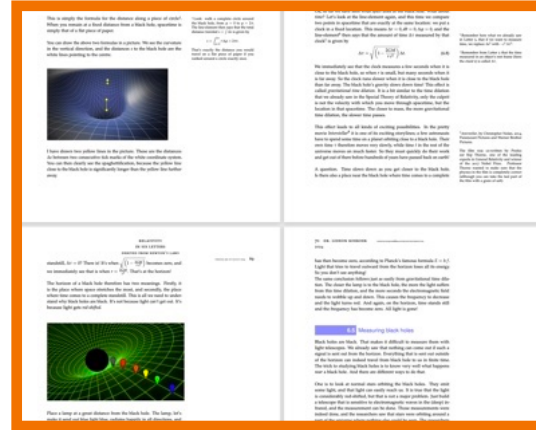
The MaGIC summer course provides teachers with a solid theoretical background and educational methods to bring gravitational waves to the classroom!

**The topics covered in the MaGIC Summer school include:**

- Instrumentation science: laser technology, waves and vibrations, Newtonian damping, data-analysis techniques, modelling of sources.
- Modern physics: theory of relativity, black holes, gravitational waves and their sources, astrophysics, cosmology.
- Didactical techniques of physics, built on the high school curriculum of physics

# MaGIC: all ingredients have been accounted for!

- Didactical materials
- Infrastructure
- Funding



Summer '24

November '24

January '25

Summer '25

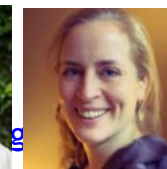
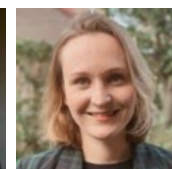
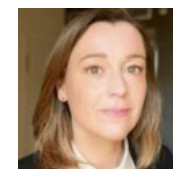
Creation of  
didactical  
materials

Received  
funding

Finalised  
week programme

Start  
communications

Pilot;  
Welcome first group



# The future of MaGIC



- MaGIC has funding for two years (2025, 2026), but is intended to obtain structural funding.
- I expect this to happen when the location for Einstein Telescope has been decided and construction begins.
- This gives two years to show a successful proof of principle. Measurements of efficacy will be performed
- First iterations of online platform for European teacher community

January '25

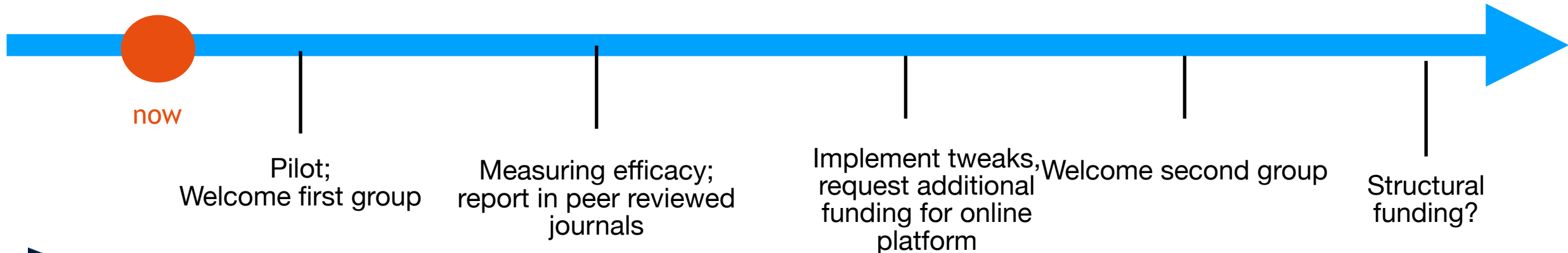
Summer '25

Fall '25

Spring '26

Summer '26

Fall '26



**Maastricht University**

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# Thank you!



MaGIC webpage:

[www.maastrichtuniversity.nl/events/maastricht-gravitational-inspiration-curriculum-magic](http://www.maastrichtuniversity.nl/events/maastricht-gravitational-inspiration-curriculum-magic)

MaGIC registrationpage:

[maastrichteducation.qualtrics.com/jfe/form/SV\\_0HOTG3ITAdBcIVE](https://maastrichteducation.qualtrics.com/jfe/form/SV_0HOTG3ITAdBcIVE)