

# Einstein - Telescope

## Location:

- in a geologically stable and quiet region

## Underground:

- less seismic noise
- less Newtonian noise

## 1 detector per corner:

- complete field-of-view
- access to polarization
- directional sensitivity

## 2 interferometers per detector:

- extended frequency range
- follow signals for hours

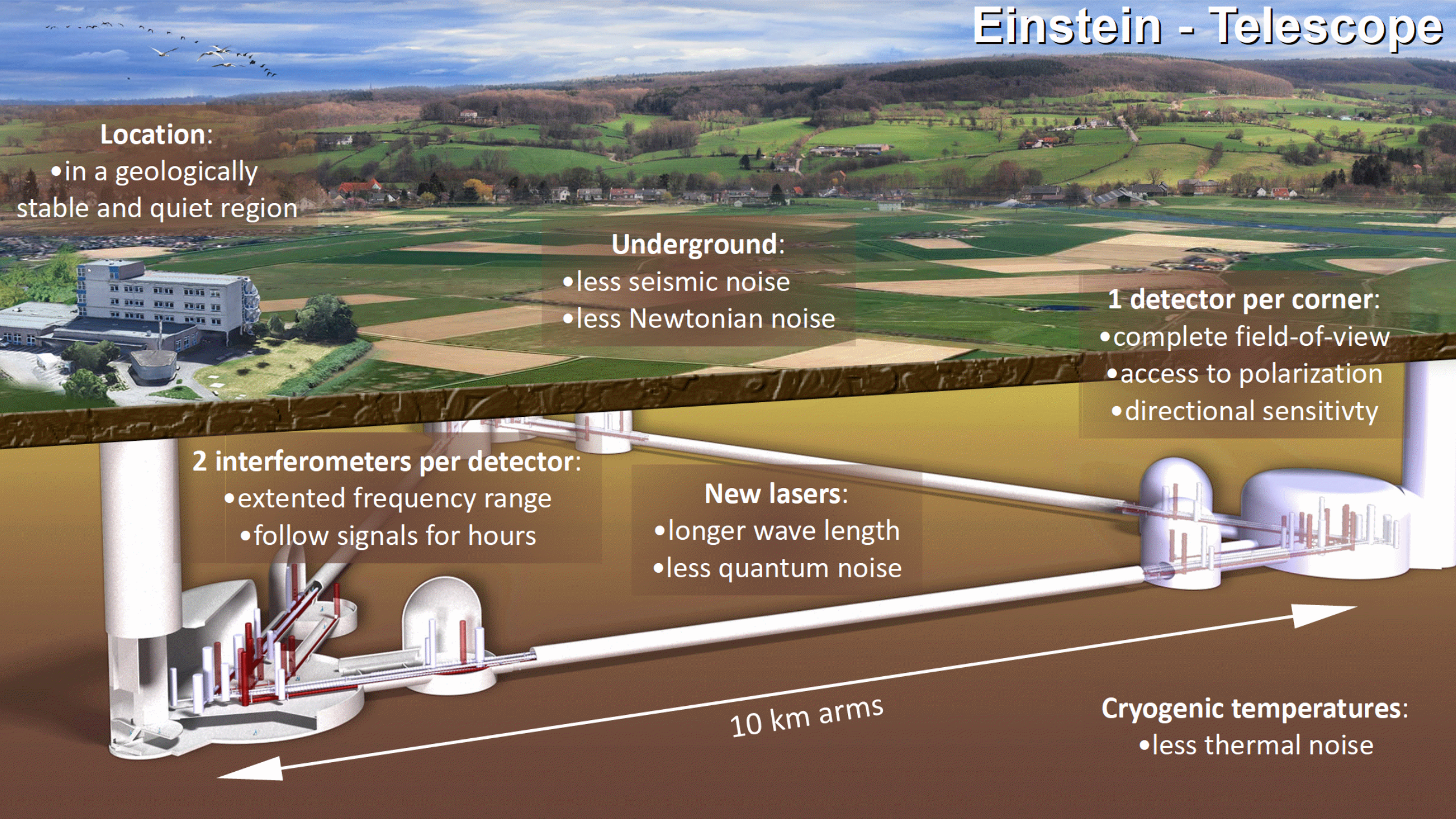
## New lasers:

- longer wave length
- less quantum noise

10 km arms

## Cryogenic temperatures:

- less thermal noise





# ET Vacuum

- 12 x 10 km arms @ room temperature + cryogenic endstations (mirrors)
- Largest UHV system ever built
- Fluctuations in gas density → fluctuation in the index of reflection → noise
- Vacuum  $10^{-11}$  mbar (cost 450 Mio. €)
- Technological developments for better vacuum and lower cost
  - New materials
  - Coatings
  - Distributed pumping
  - New concepts for pipes
  - New production technologies
  - Better design tools

# New UHV Technologies

