

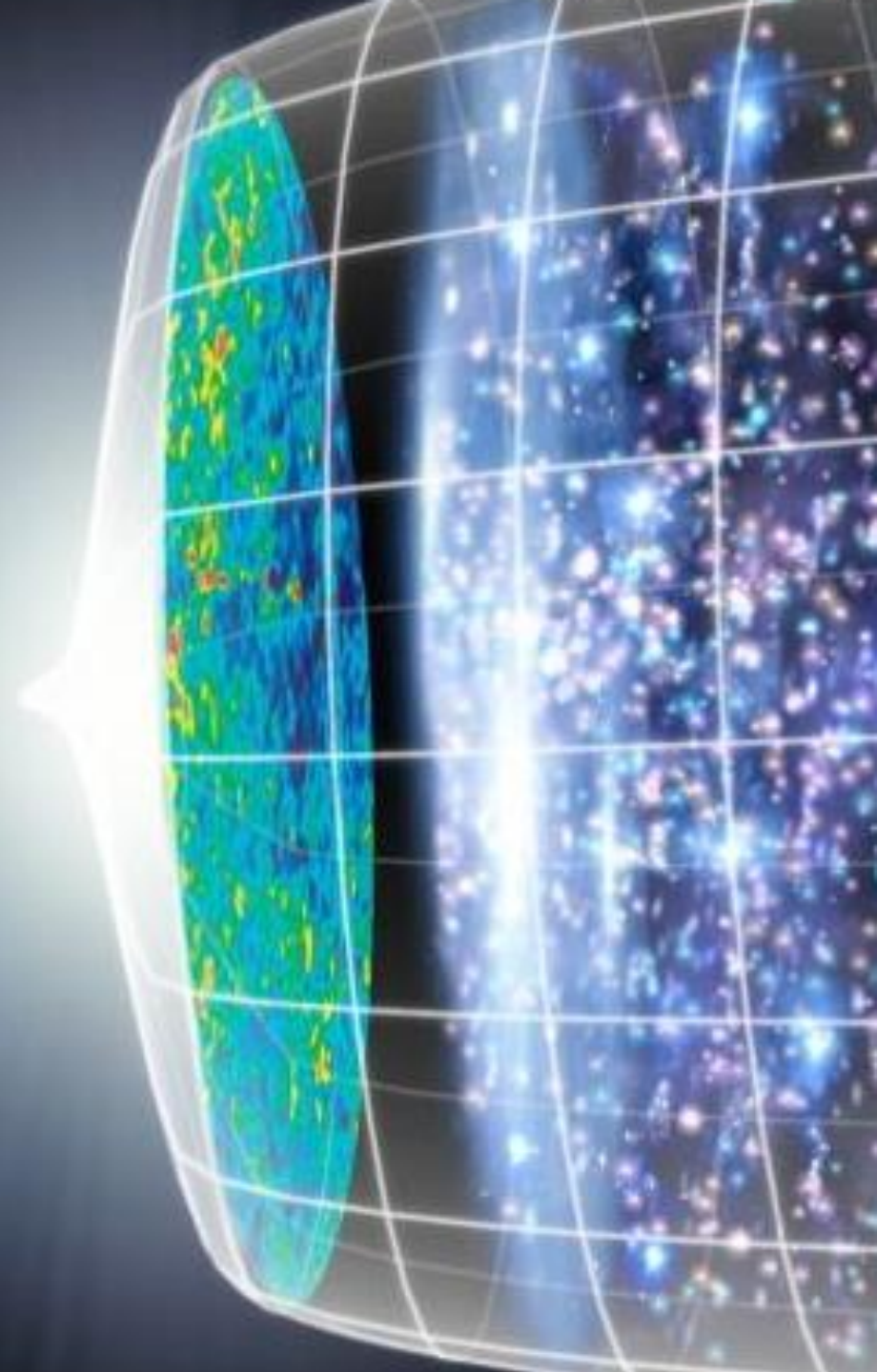
# Why are we here?

Dr Darren (Das) Baskill  
Astronomer at the University of Sussex, UK



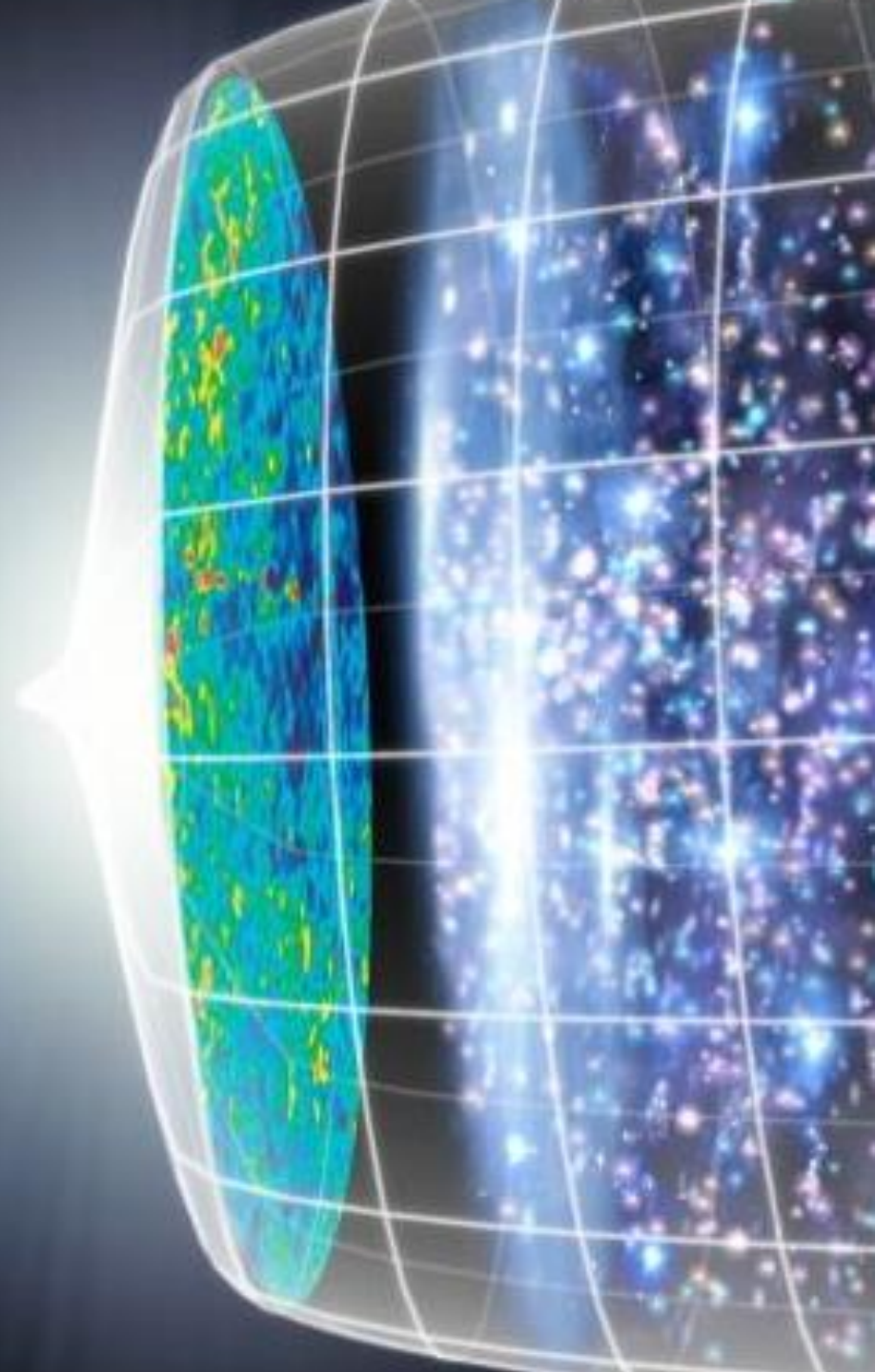
It all began  
13.8bn years ago...

In an event  
called the Big Bang





$10^{-36}$ – $10^{-32}$  seconds in,  
the Universe  
inflated rapidly.



# Anti-Matter Annihilation

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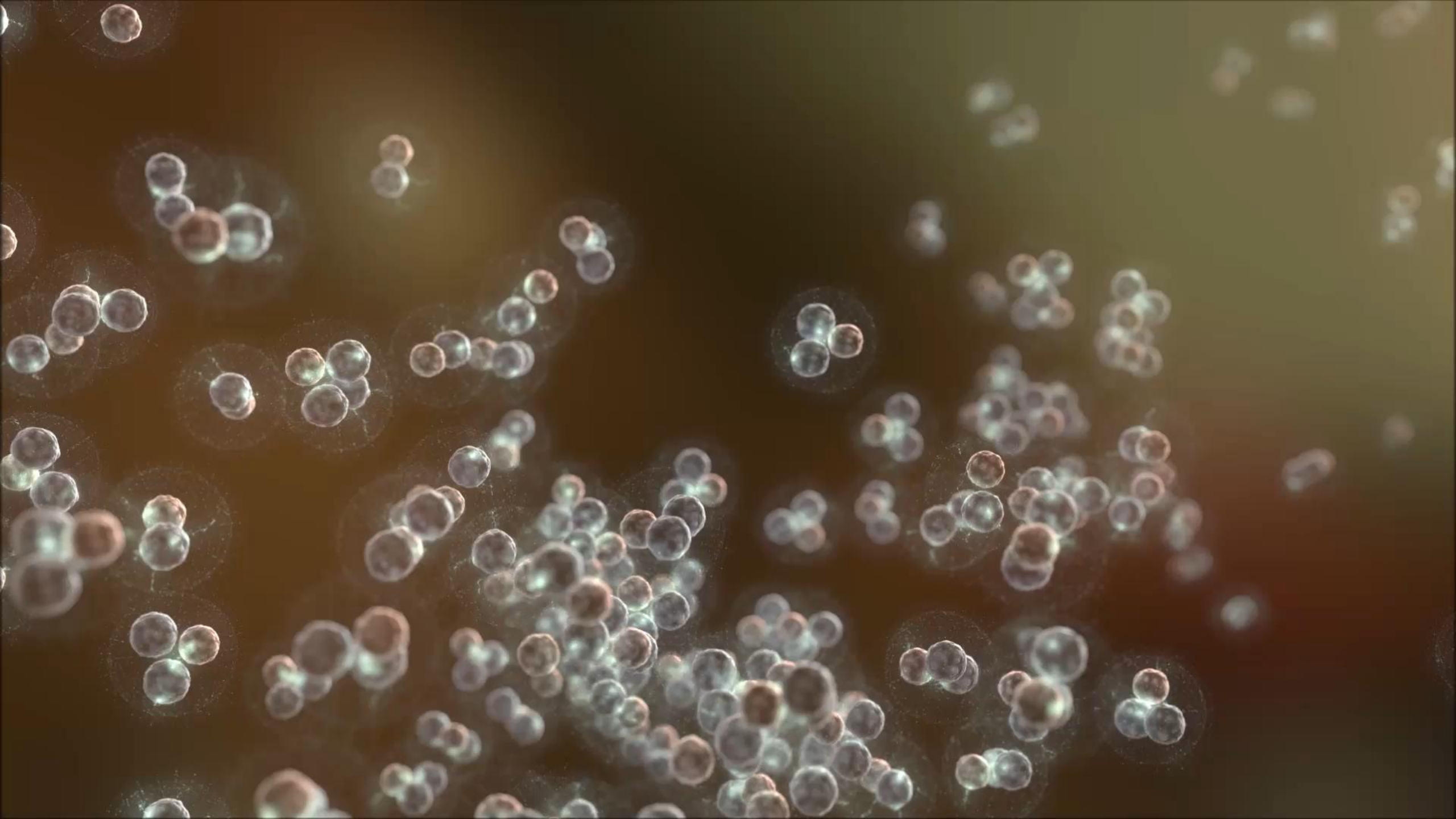






The University  
of Sussex  
nEDM  
experiment






# The first stars form

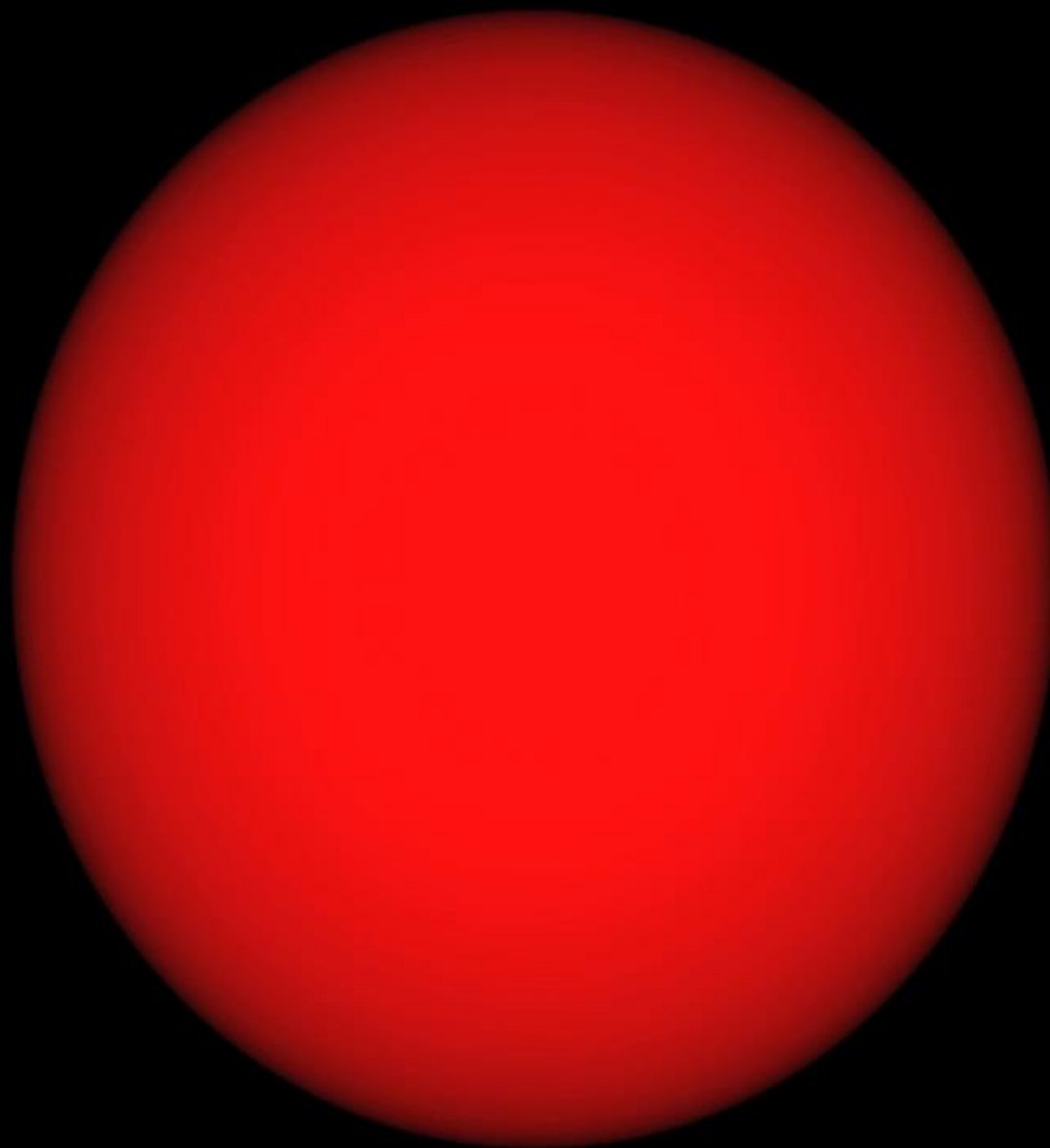
$Z=0.01 Z_{\odot}$

0 yr

$\log(\text{Col. Density [g/cm}^2\text{]})$



-1 0 1



Matthew Bate  
University of Exeter

# Nuclear Fusion

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# Supernova

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NASA/Chandra



spreading elements







Temperature [millions of degrees]





Artwork: Mark Garlick /  
University of Warwick





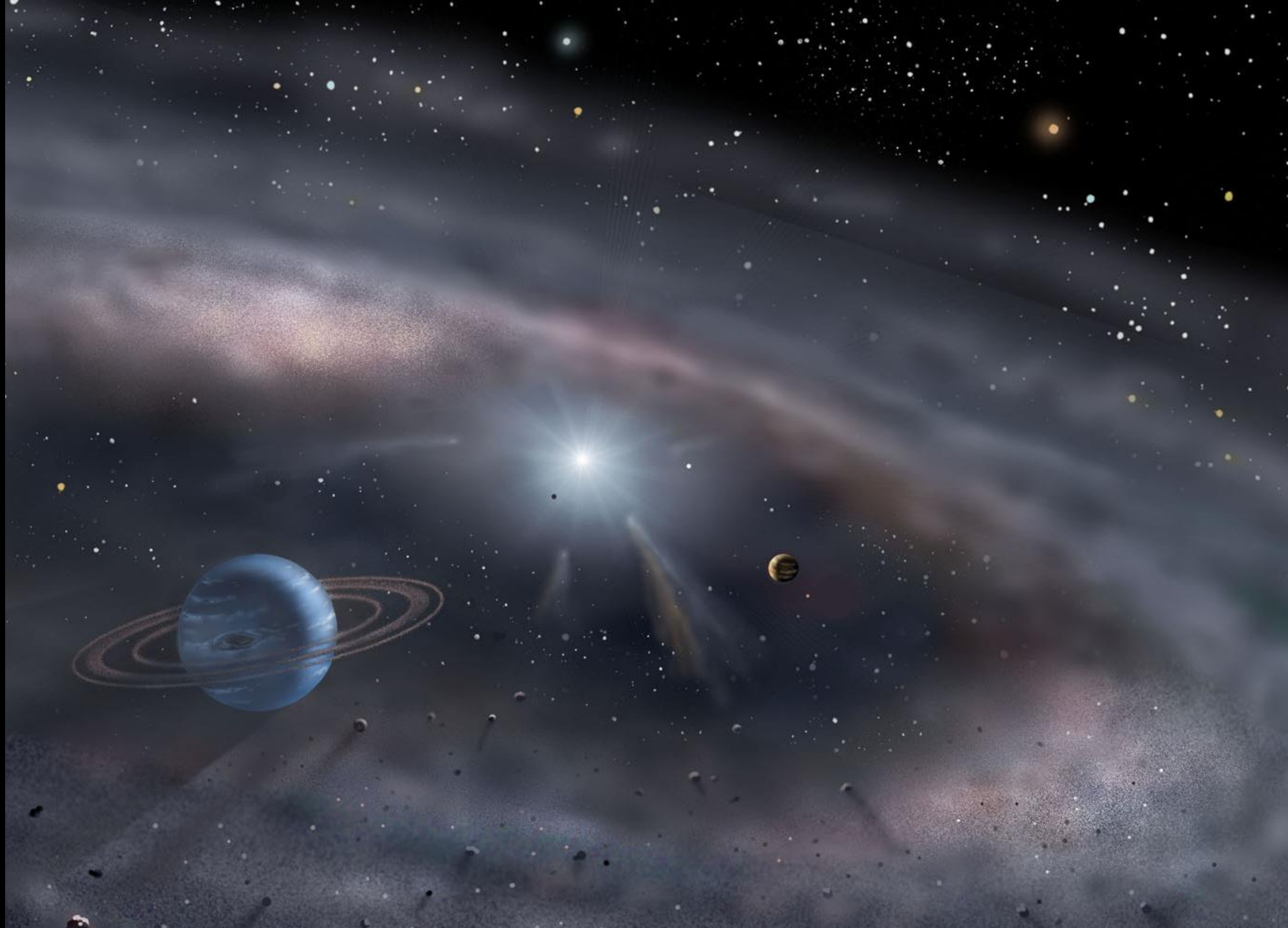
# 2<sup>nd</sup> & 3<sup>rd</sup> generation stars

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# Our Solar System forms

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©JAXA/NHK





# History of life on Earth

The Earth formed 4.7bn years ago

Oceans ~200Myrs later

Life formed in the ocean after another few 100Myrs

- The earliest single cells fossils are 4bn years old!

Multi-cellular life formed 1.6bn years ago,  
reached land 1.25bn years ago,  
& plants evolved 1bn years ago

Complex animals evolved ~500Myrs ago





# Lucky asteroid



Until, just 66 million years ago...



# Lucky asteroid

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Cute fluffy animals

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A photograph of a chimpanzee and its young in a forest setting. The adult chimpanzee is on the left, looking towards the right. The young chimpanzee is on the right, looking towards the camera. They are surrounded by green leaves and branches.

These animals evolved, spread  
and developed to communicate,  
make tools & farm food.

Recently, a very special primate formed.



These primates evolved into humans  
~100,000 years ago





Humans can potentially communicate  
with alien life on other worlds.

Humans





After 13.8 billion years  
and a bit of luck,  
one remarkable  
individual formed.

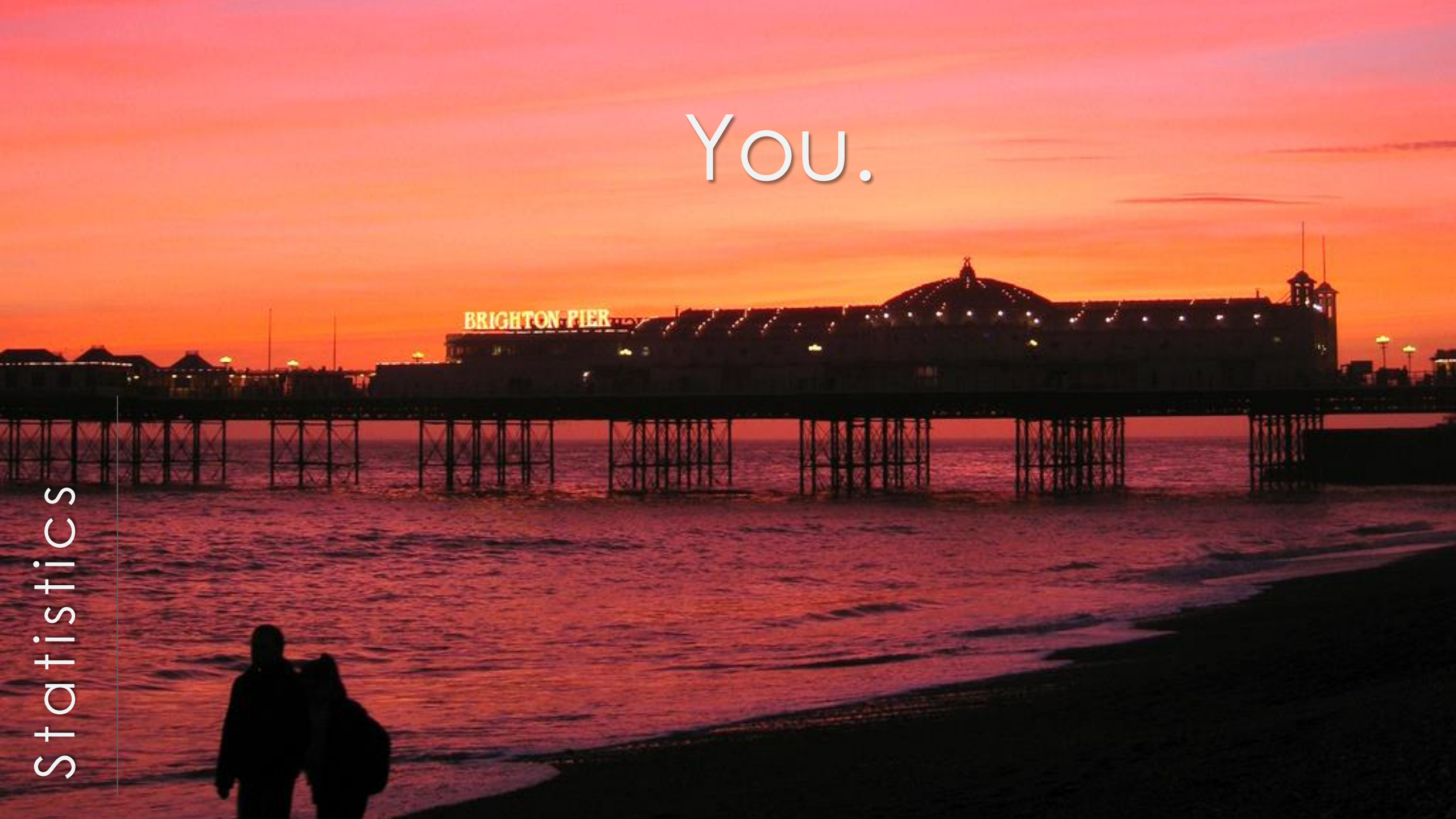
Statistics





You.

Statistics





BIG BANG  
FUSION

DYING  
LOW MASS  
STARS

EXPLODING  
MASSIVE  
STARS

COSMIC  
RAY  
FISSION

MERGING  
NEUTRON  
STARS

EXPLODING  
WHITE  
DWARFS

You are made  
of atoms that  
originated  
inside stars.



1%

9.5%

16.5%

73%

A large flock of birds, likely terns, is captured in flight over a body of water during sunset. The sky is a mix of orange, pink, and purple, while the water below is a deep blue. In the lower-left corner, a bright orange sun is partially obscured by the silhouettes of the birds. On the right side of the horizon, a building with a distinctive circular structure on top is visible. The overall scene conveys a sense of natural cycles and the passage of time.

You still follow the cycles  
of our solar system to this day.

The daily cycle, as the Earth rotates.



You still follow the cycles  
of our solar system to this day.



The weekly cycle...



A sunset scene over the ocean. The sun is a bright yellow circle on the left, partially obscured by clouds, with its light reflecting on the water. The sky is filled with orange and yellow clouds, and many birds are flying. In the distance, a pier with a building on it is visible. In the foreground, the silhouettes of people are visible on the beach.

You still follow the cycles  
of our solar system to this day.

We celebrate annual cycles, as we  
complete another orbit of the Solar System.



# You still follow the cycles of our solar system to this day.

- Christmas & New year (Chinese or western)
- Easter
- Ramadan
- Halloween (Day of the Dead)
- May Day
- Norwegian Constitution Day (17th May)
- Burning of the Clocks in Brighton
- And many more.

All defined by the movement of the Earth (& Moon)  
around the Solar System.



You,  
and everything around you,  
is closely linked to

Our Place  
in the  
Universe(s)







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