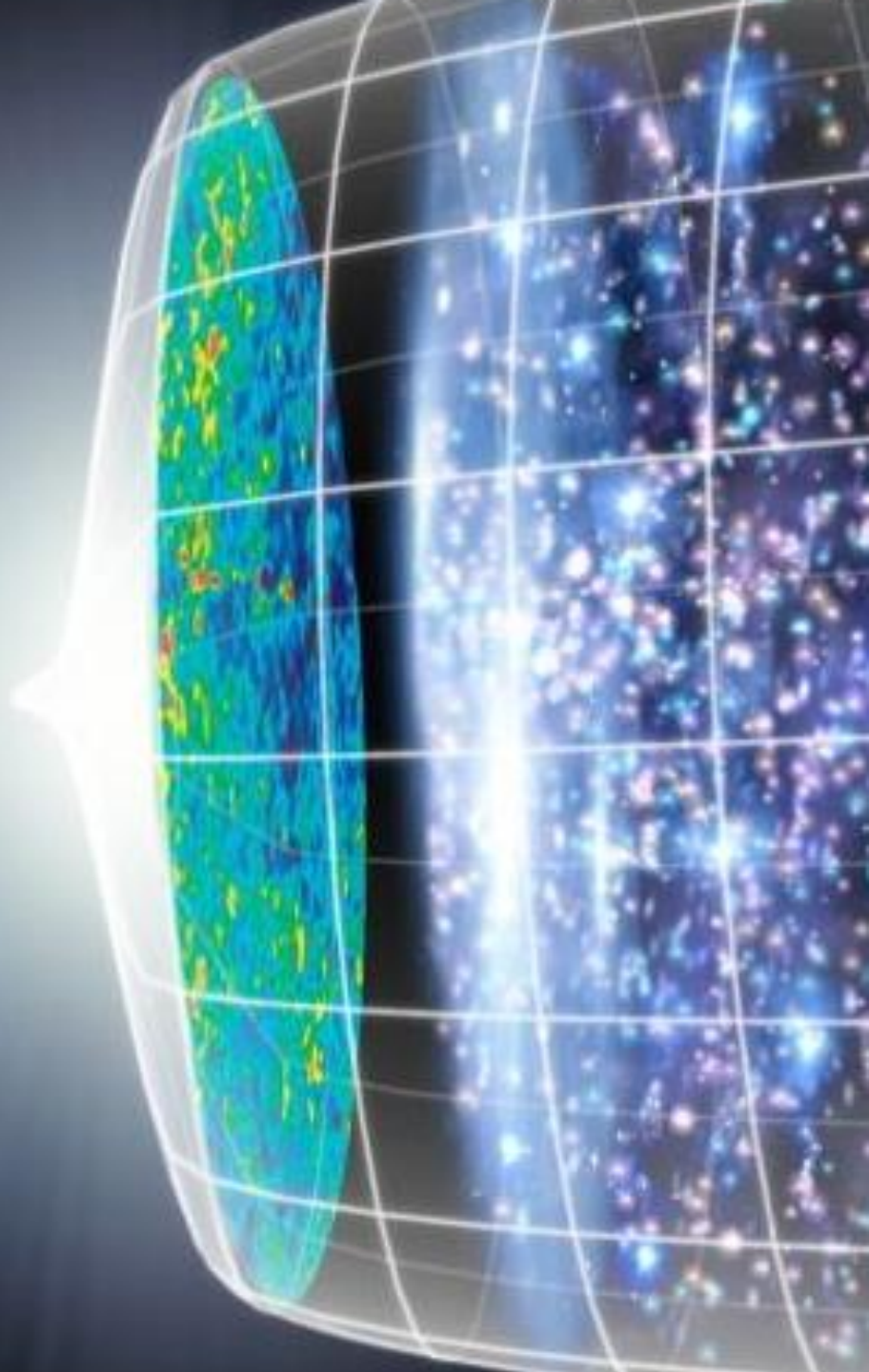
Why are we here?

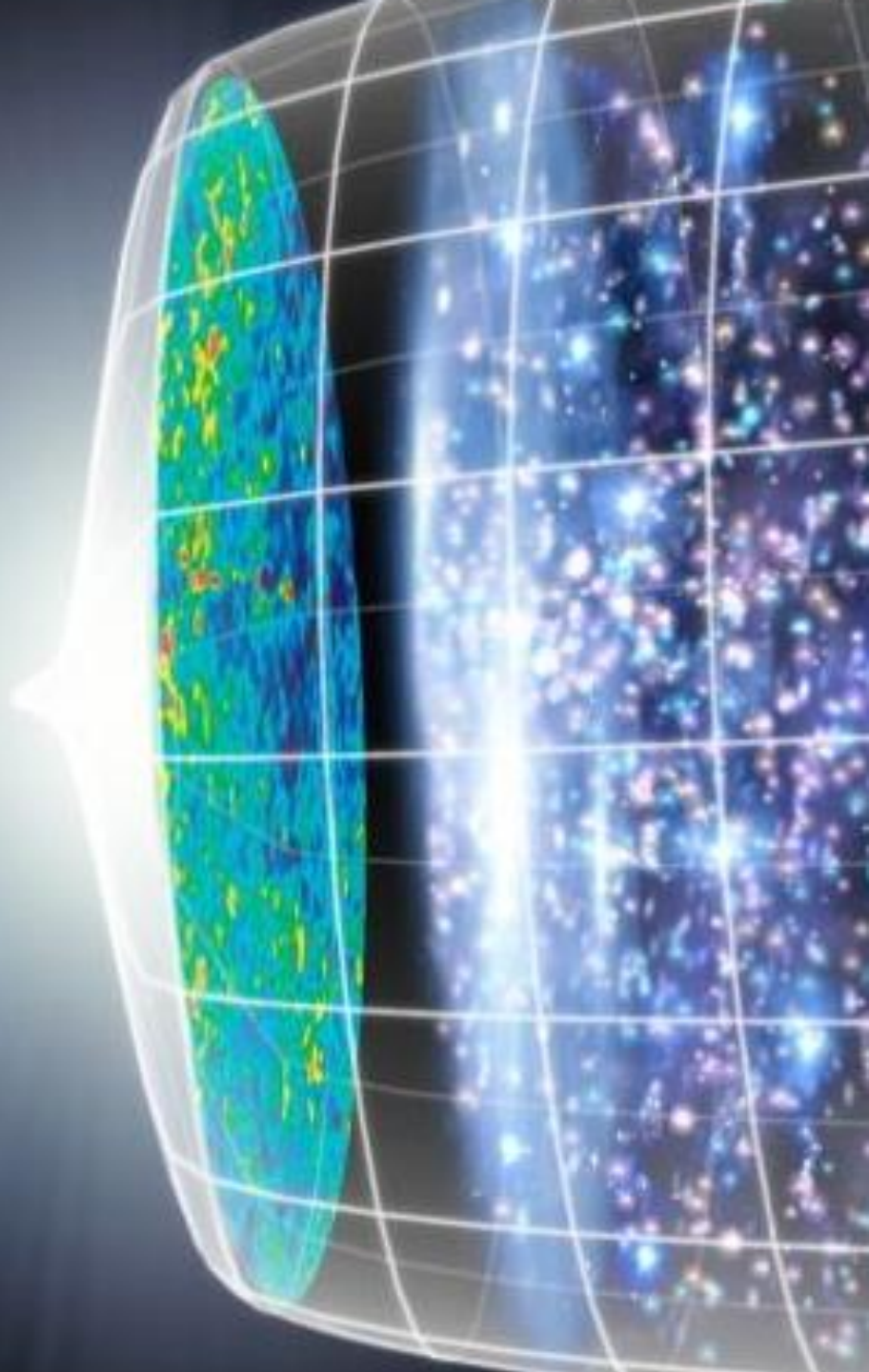
Dr Darren (Das) Baskill
Astronomer at the University of Sussex, UK

It all began
13.8bn years ago...

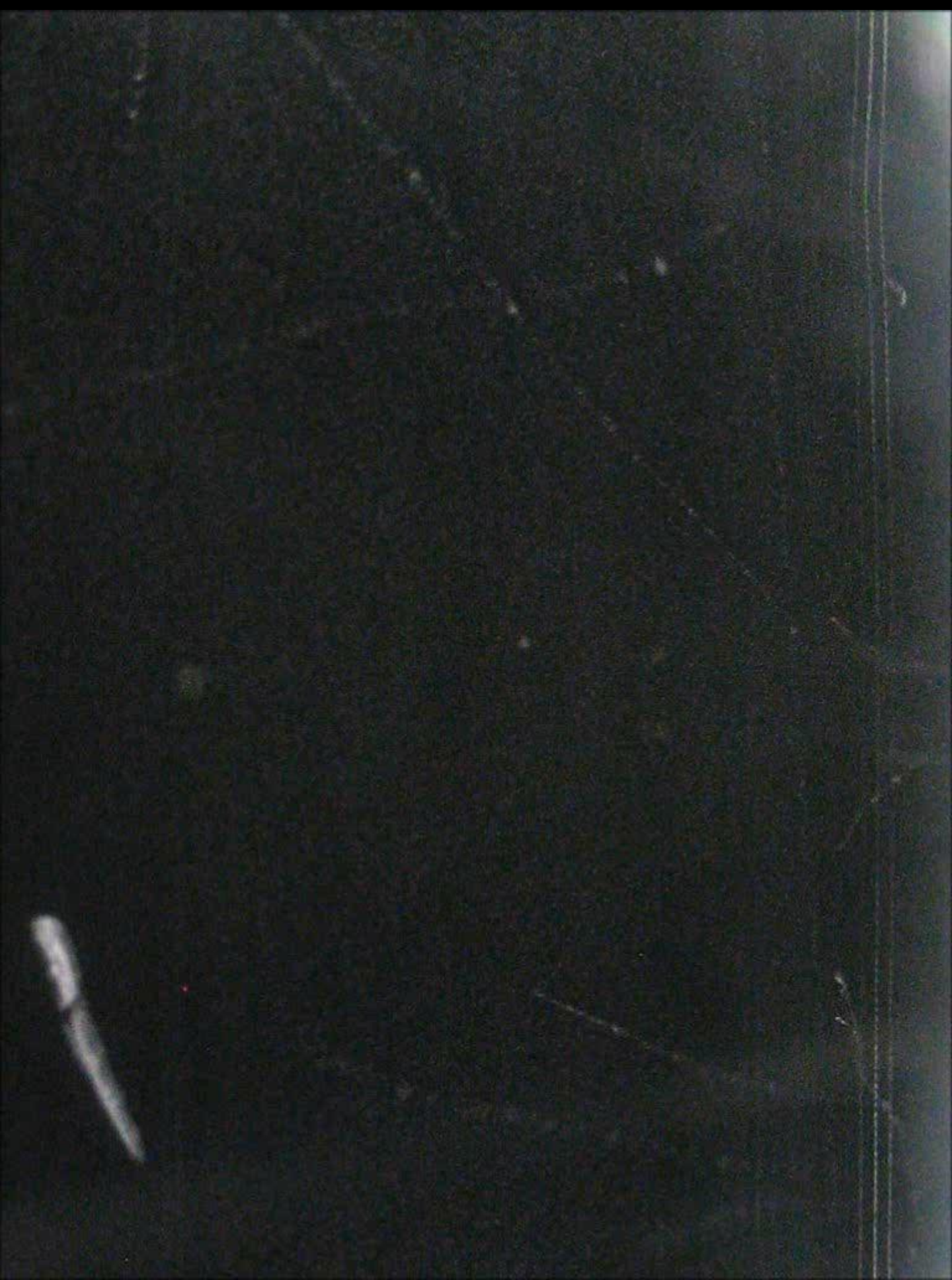
In an event
called the Big Bang



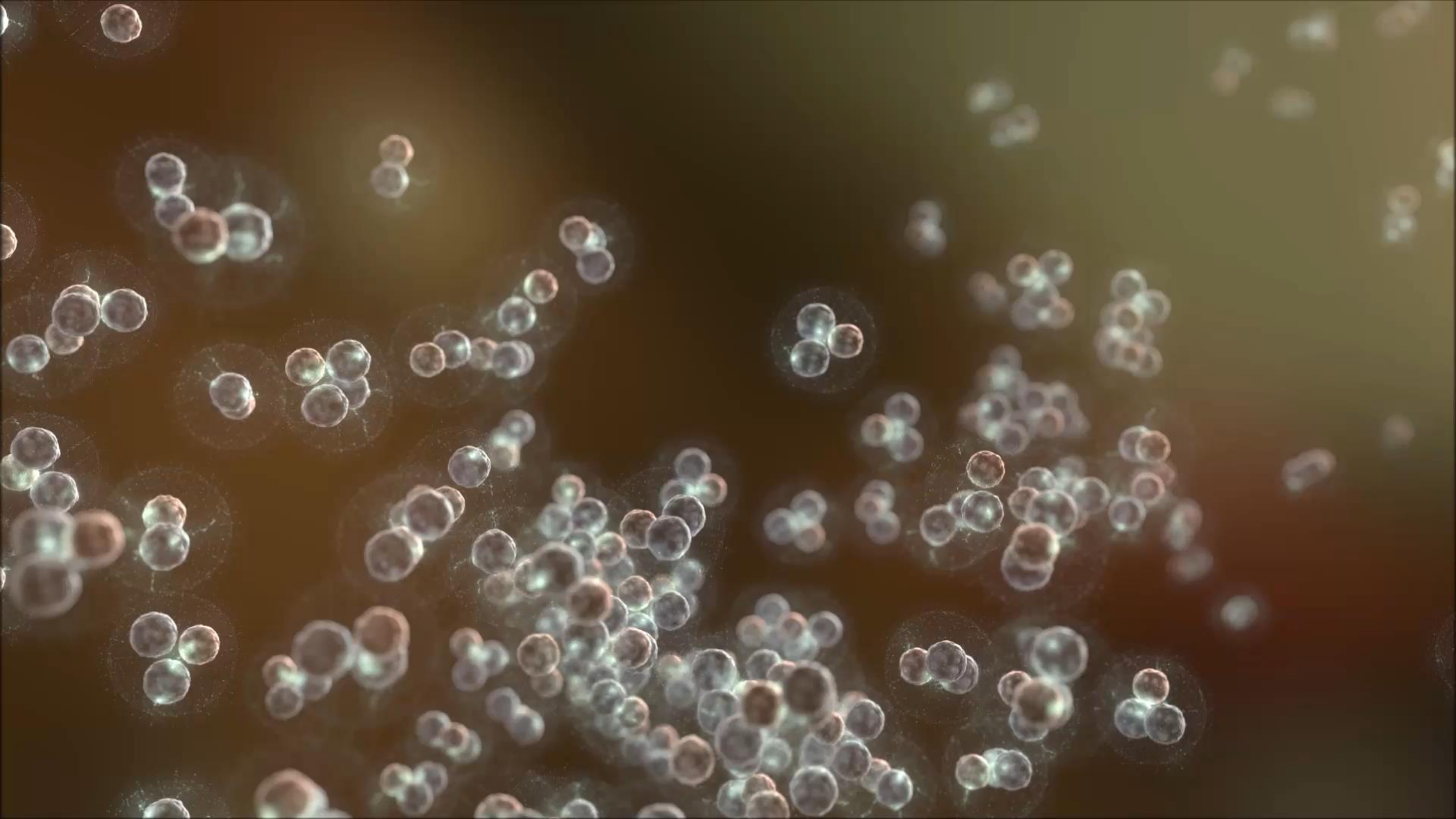
10^{-36}–10^{-32} seconds in, the Universe inflated rapidly.

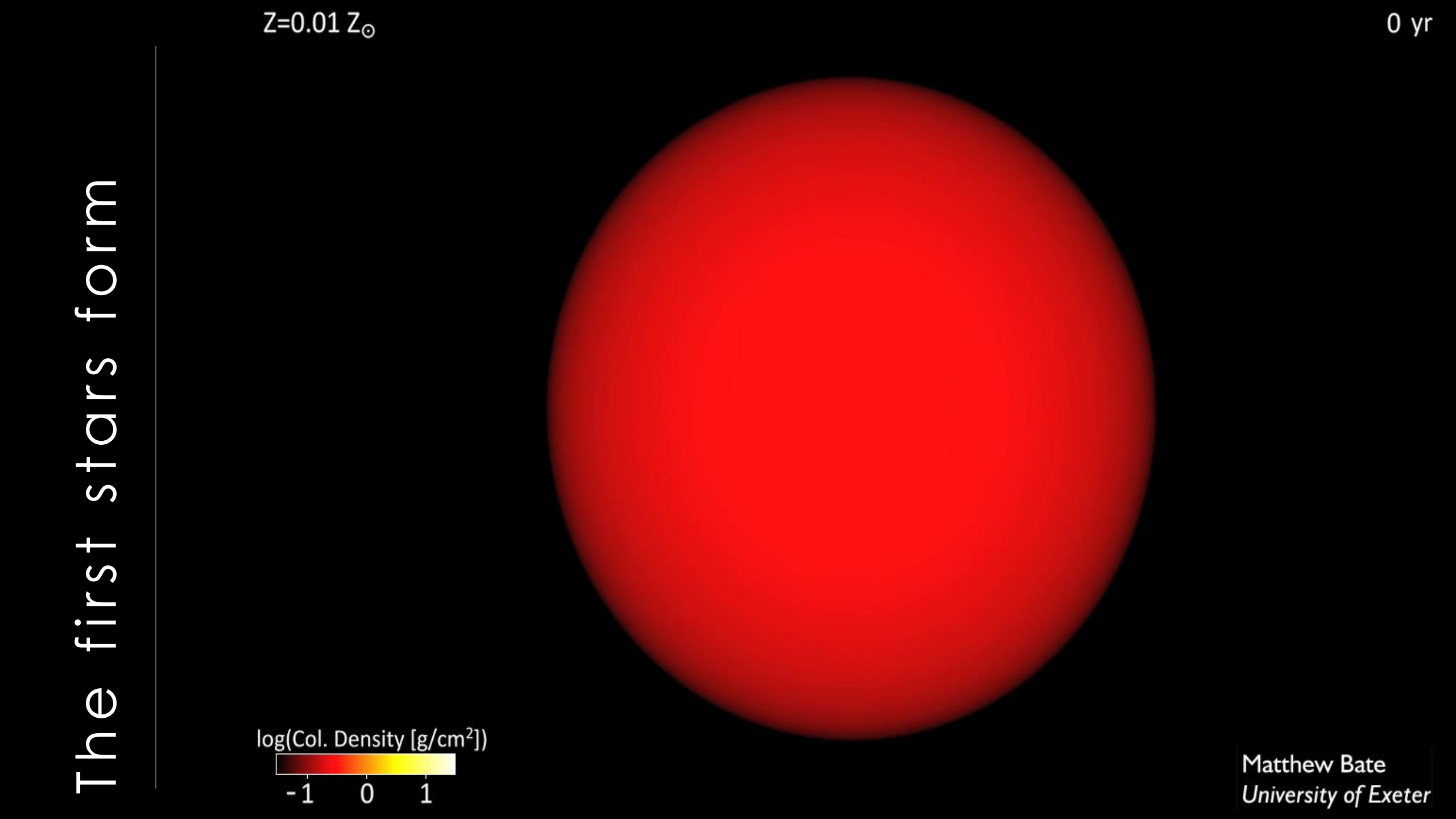


Anti-Matter Annihilation



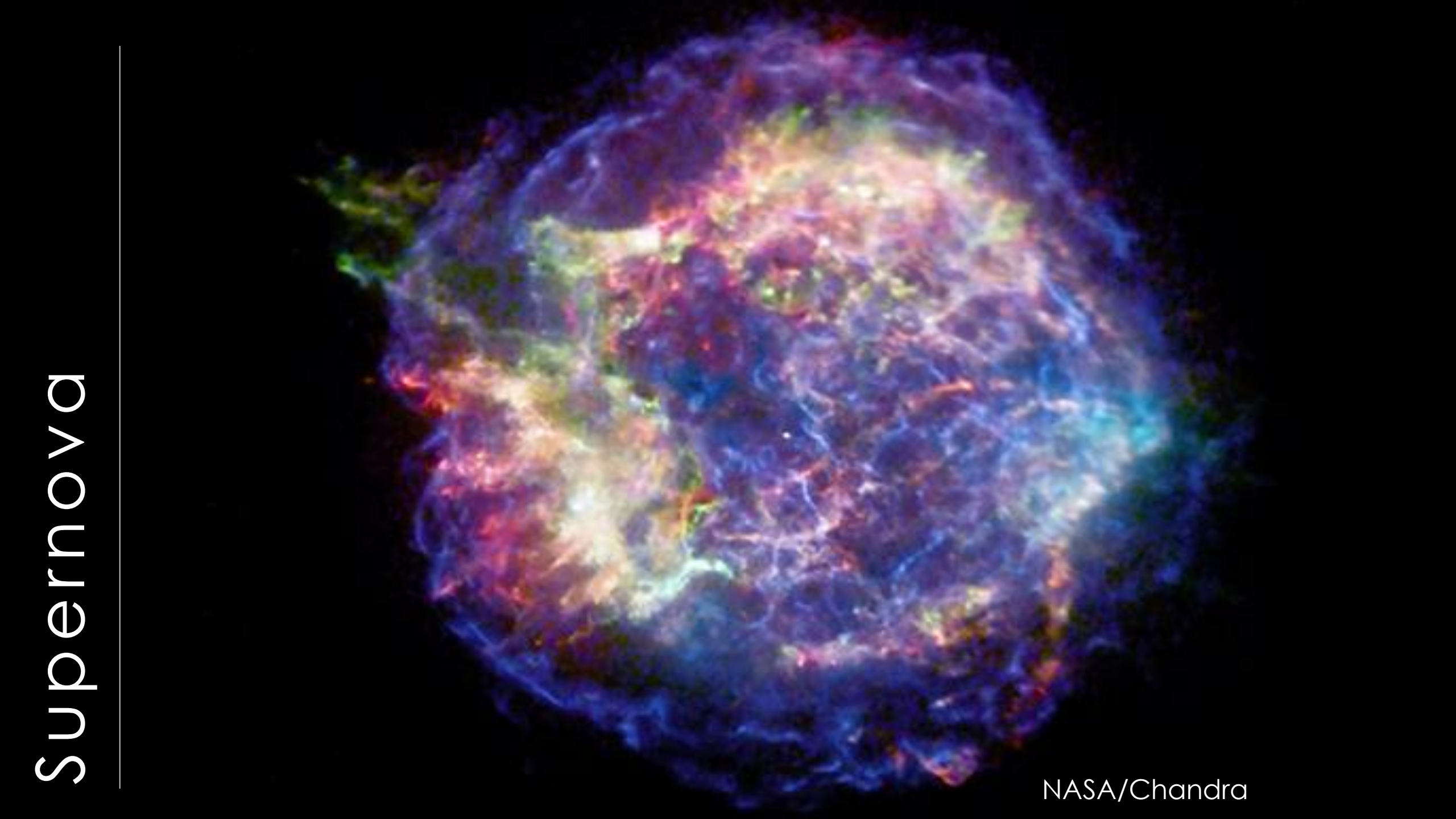
The University of Sussex nEDM experiment




Z=0.01 Z⊙
0 yr
The first stars form
log(Col. Density [g/cm²])
-1
0
1
Matthew Bate
University of Exeter

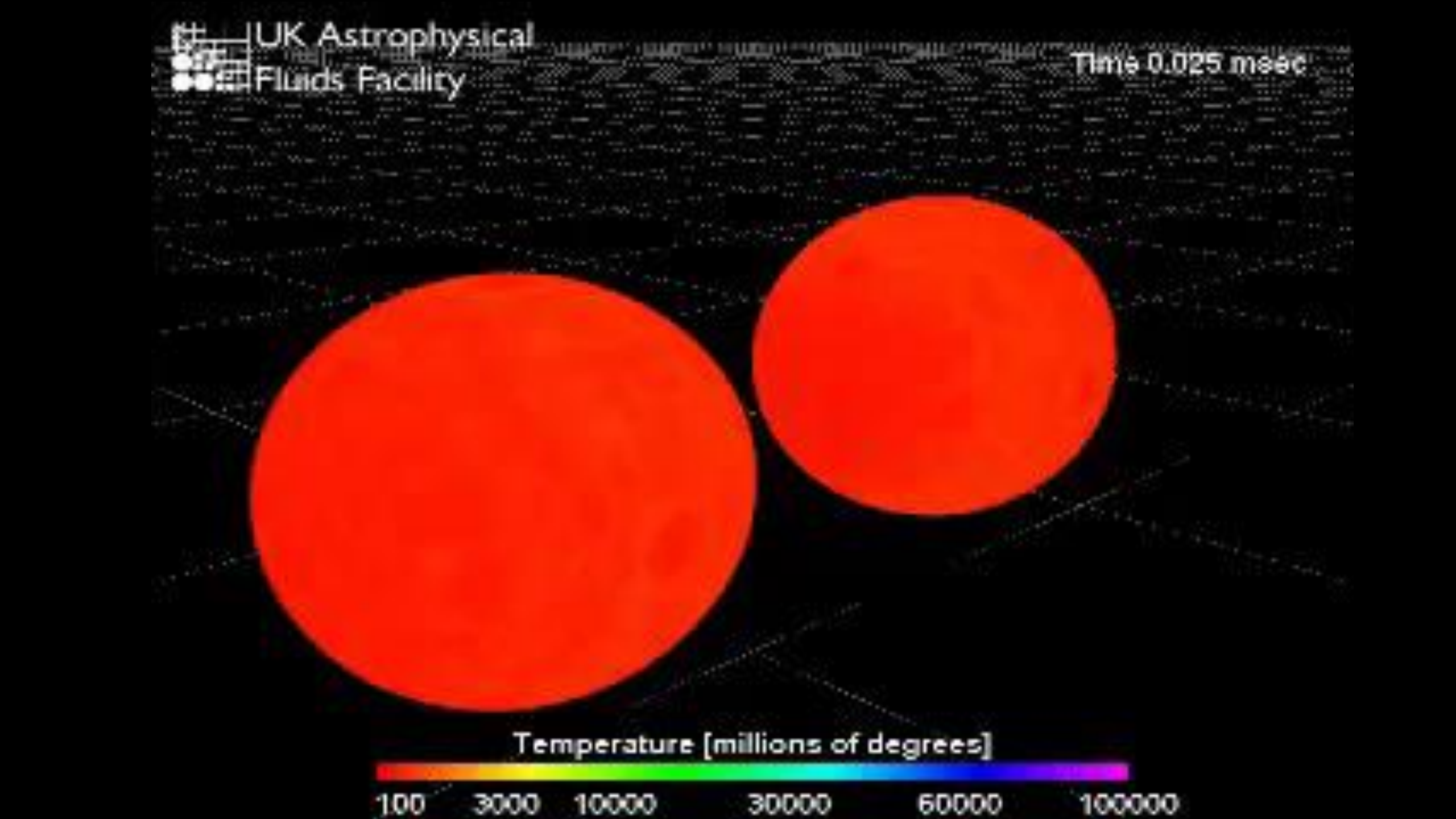
Nuclear Fusion

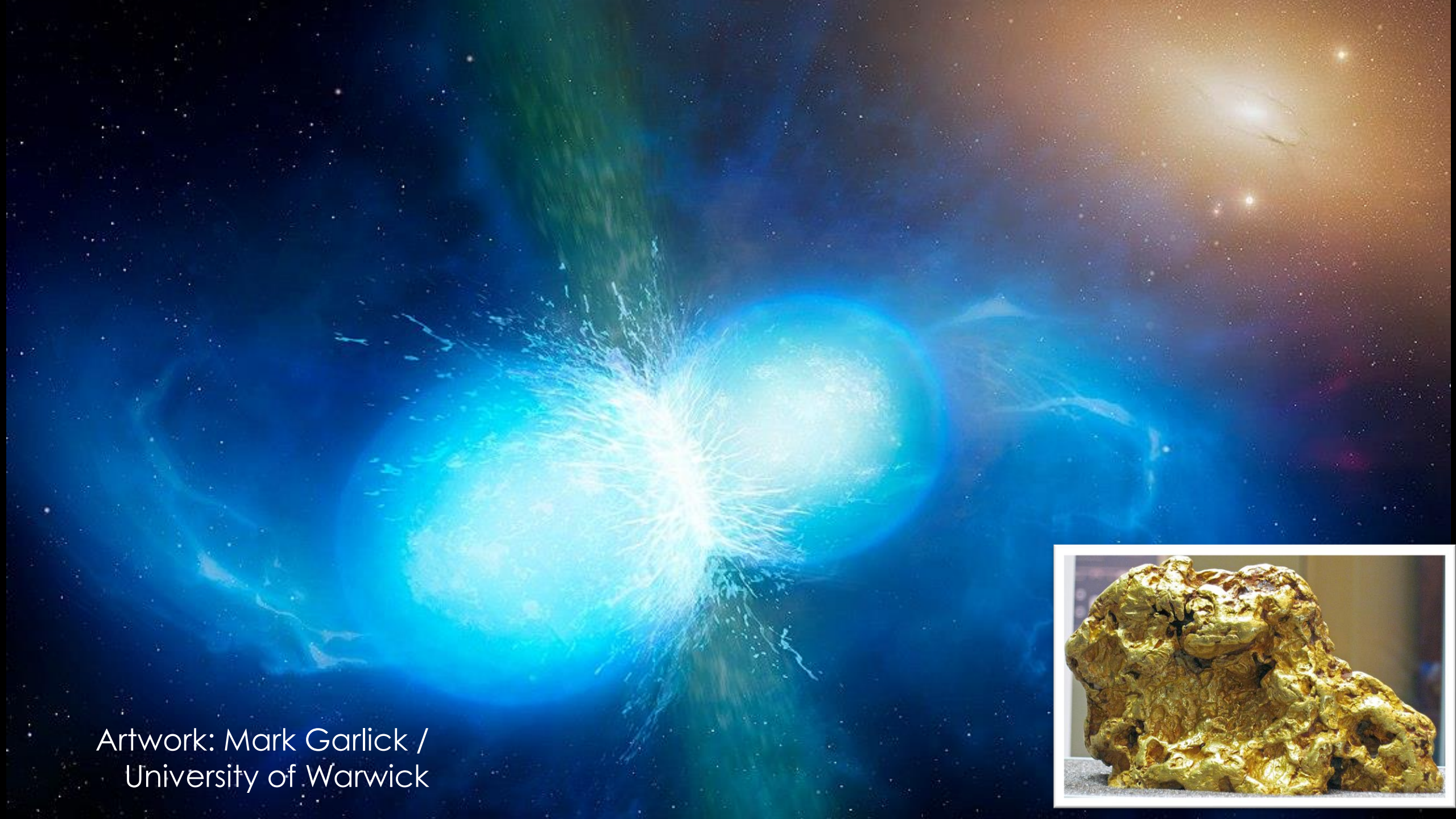
Supernova



NASA/Chandra

Spreading elements

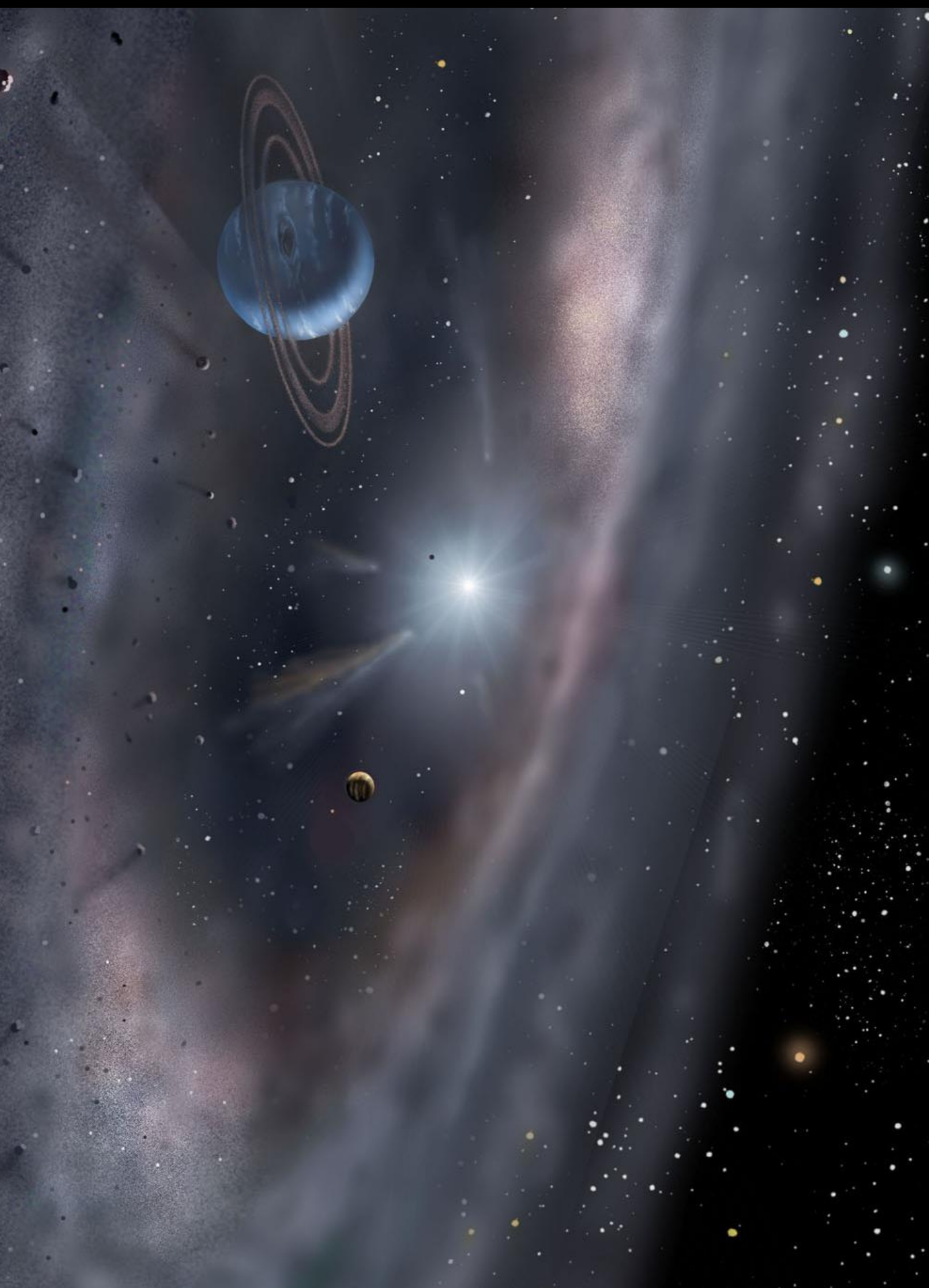

UK Astrophysical
Fluids Facility
Time 0.025 msec
Temperature [millions of degrees]
100
3000
10000
30000
60000
100000



Artwork: Mark Garlick /
University of Warwick

2nd & 3rd generation stars

Our Solar System forms

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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


BBC

Lucky asteroid

Until, just 66 million years ago...

Lucky asteroid


Cute fluffy animals

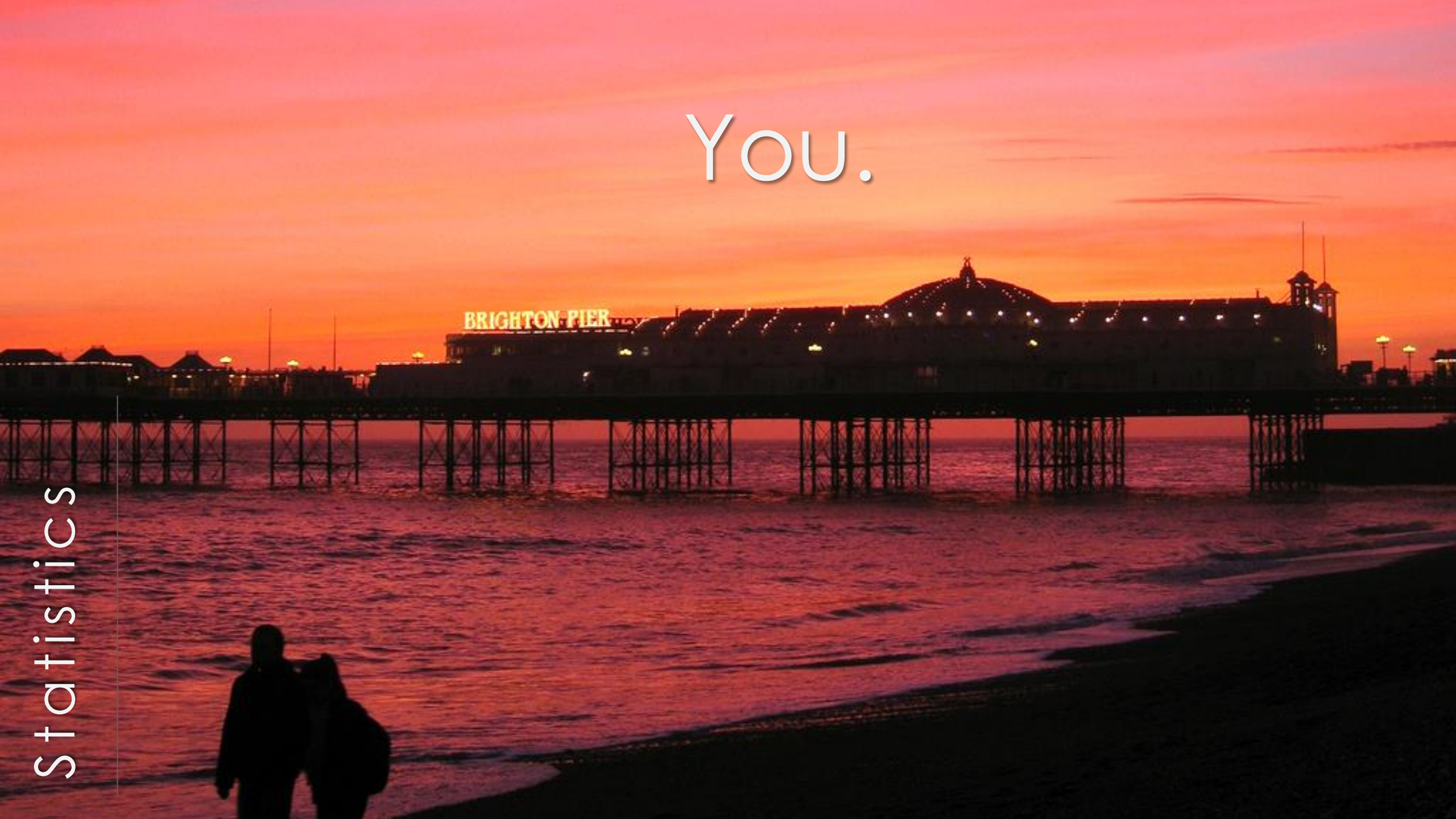

These animals evolved, spread
and developed to communicate,
make tools & farm food.
Recently, a very special primate formed.


These primates evolved into humans
~100,000 years ago

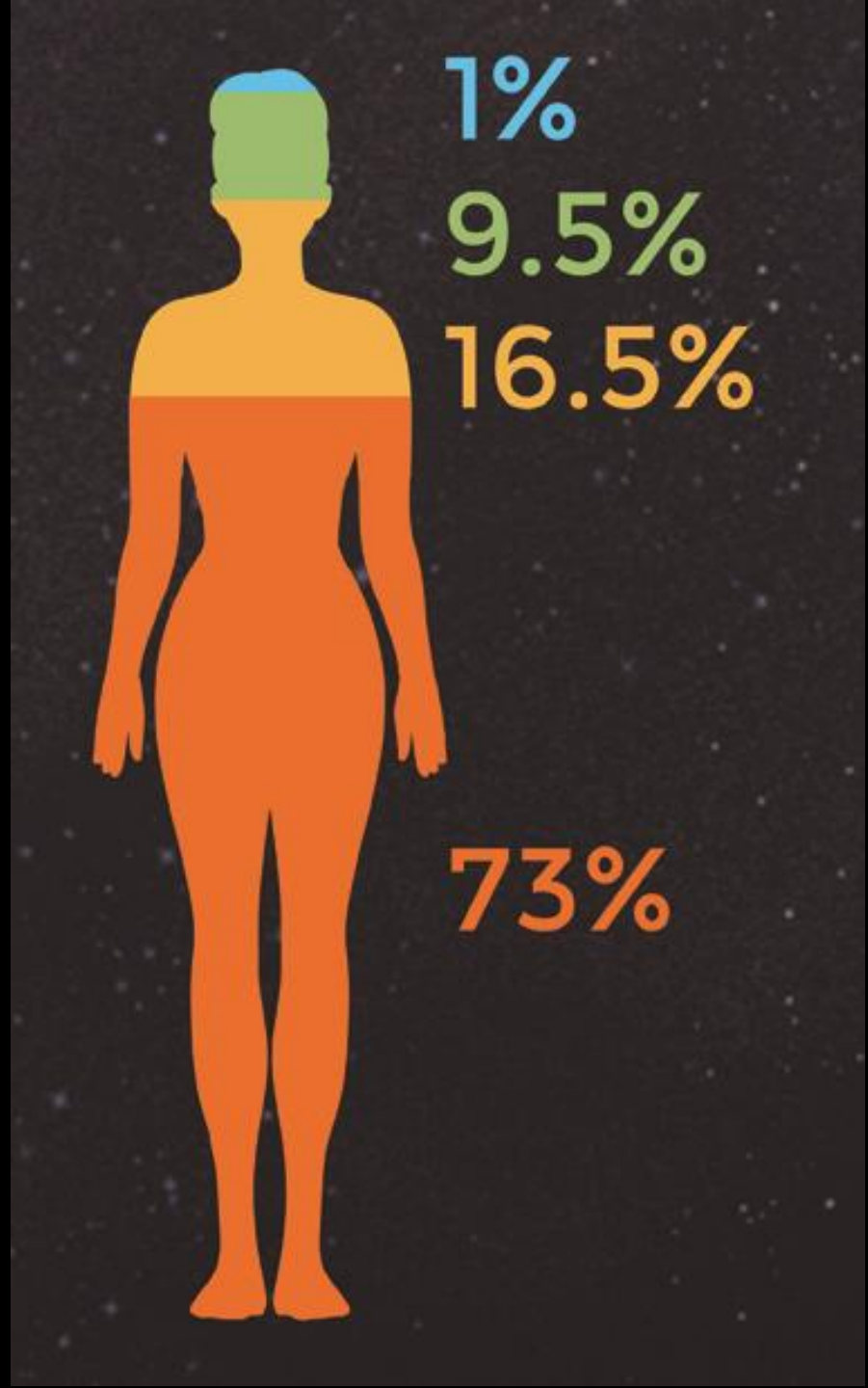
Humans

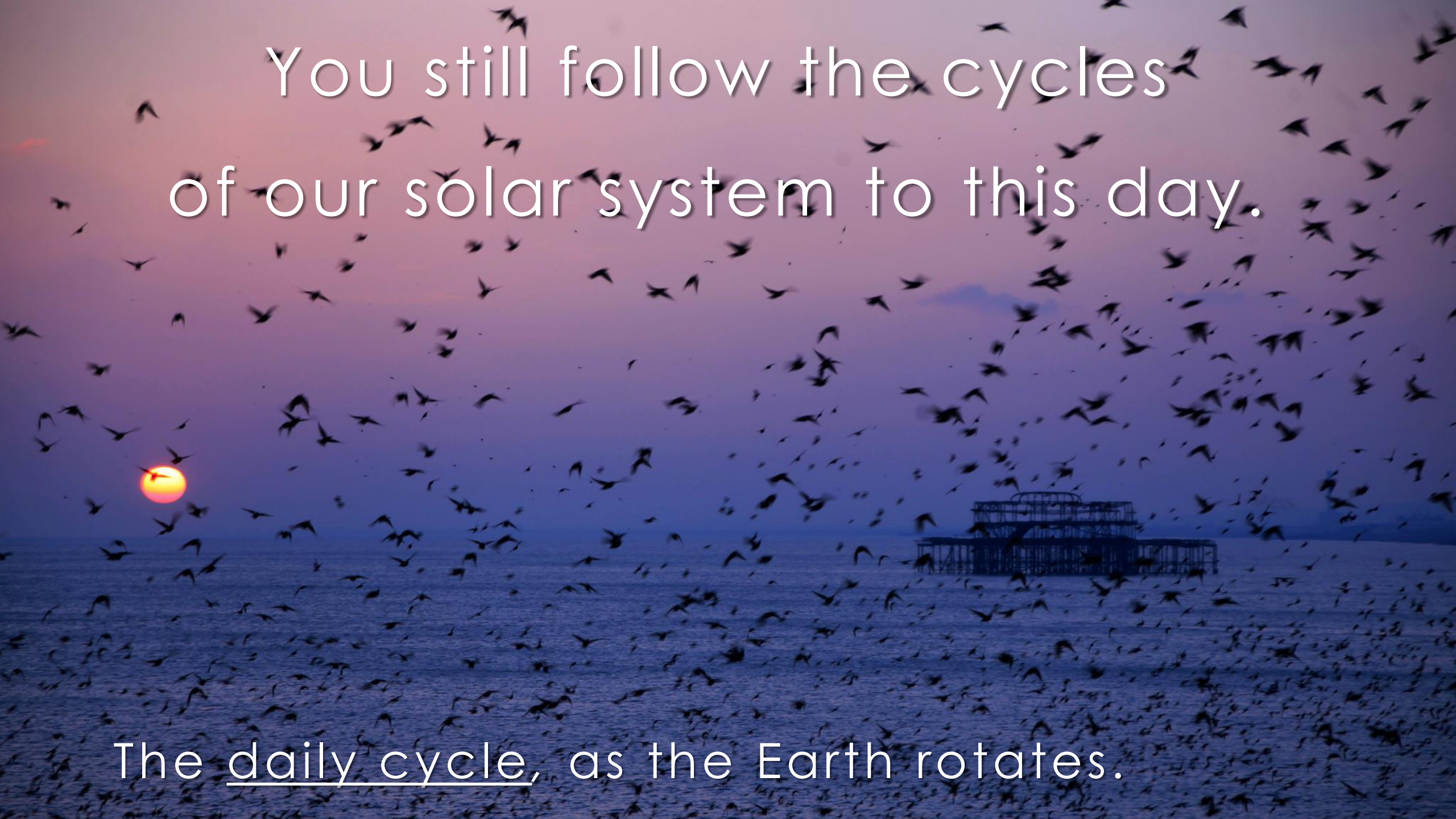
Humans can potentially communicate with alien life on other worlds.

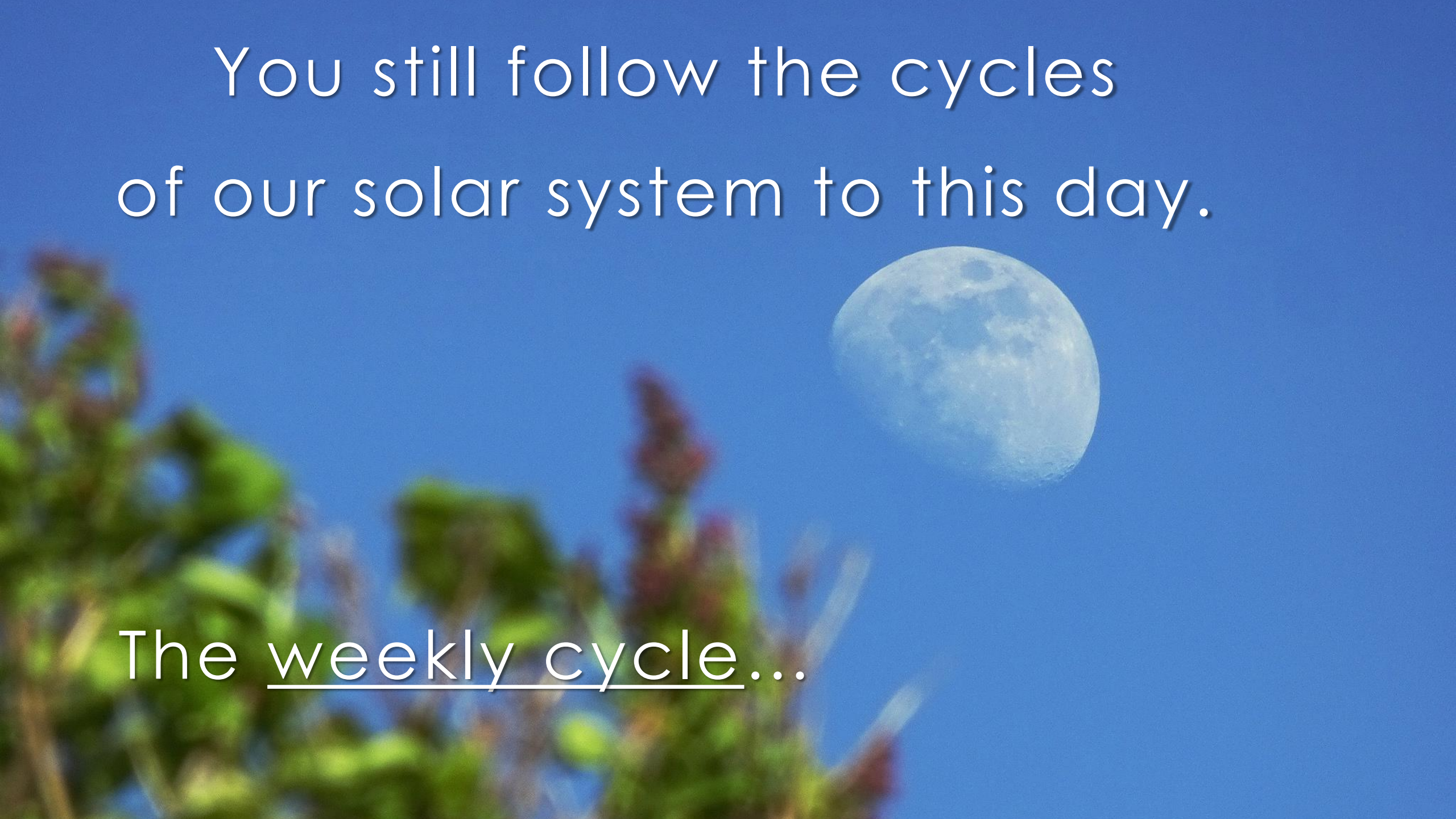

After 13.8 billion years
and a bit of luck,
one remarkable
individual formed.
Statistics

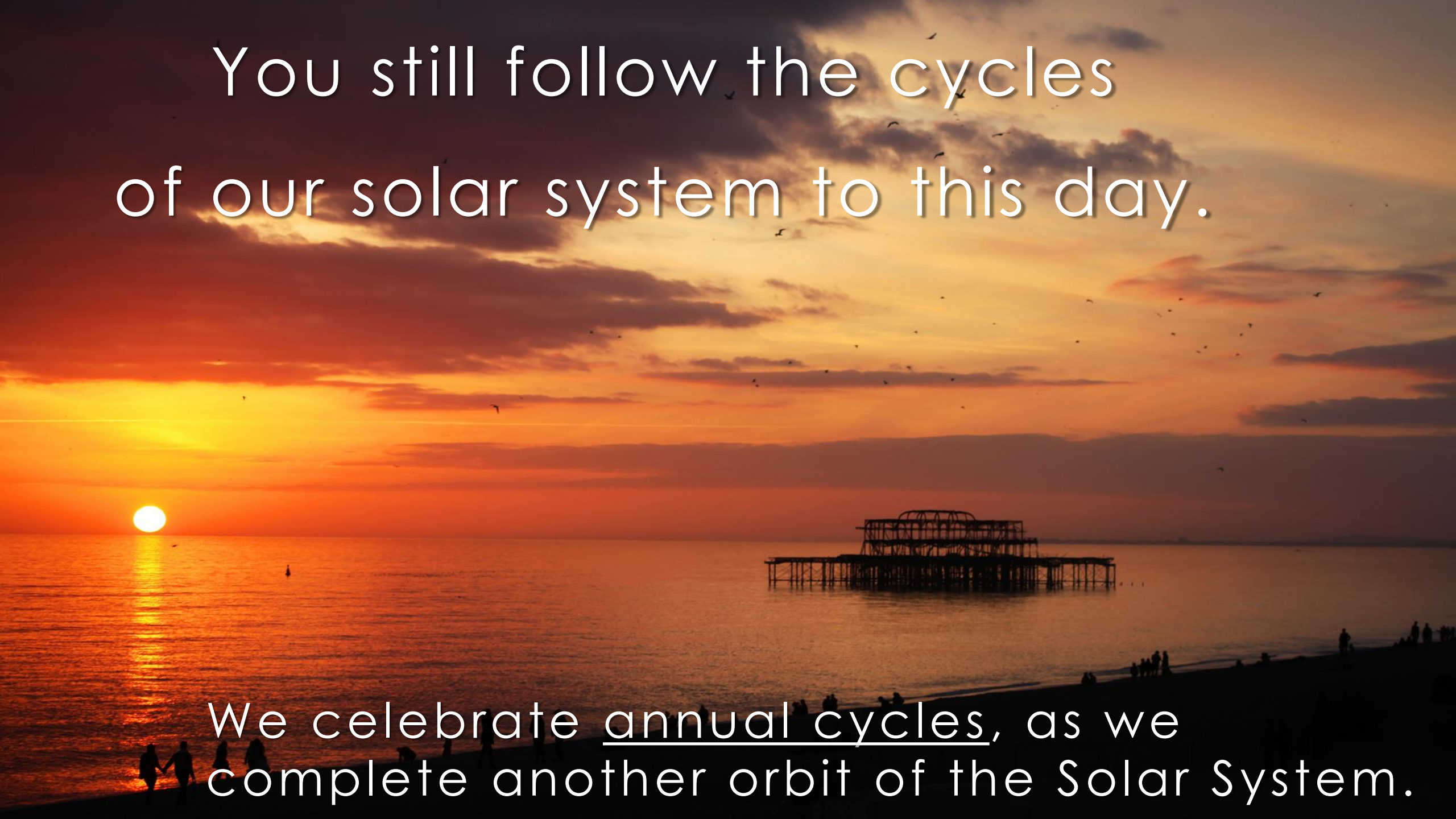

You.
BRIGHTON PIER
Statistics

You are made of atoms that originated inside stars.




You still follow the cycles
of our solar system to this day.
The daily cycle, as the Earth rotates.

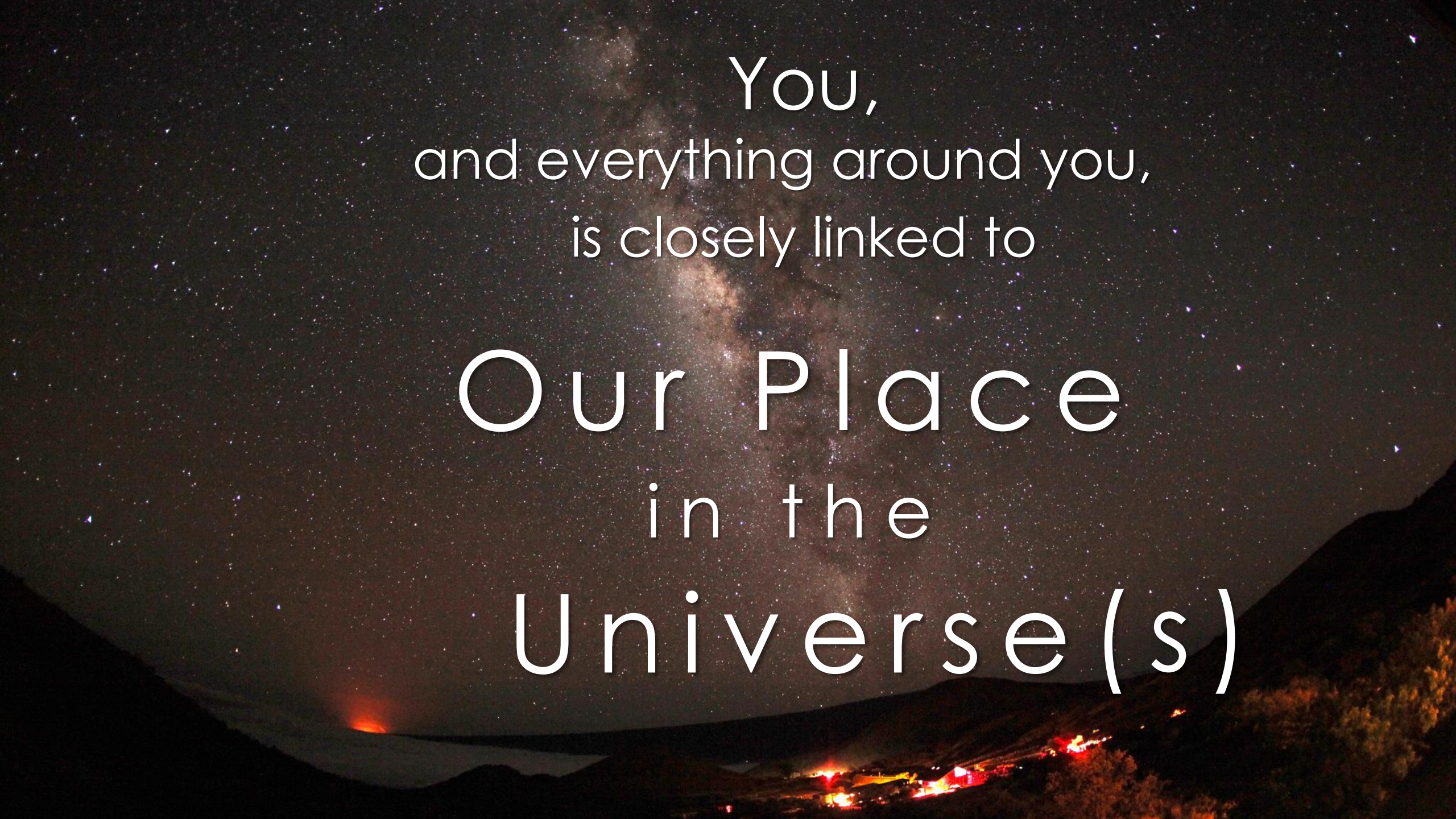

You still follow the cycles
of our solar system to this day.
The weekly cycle...


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)

Why are we here?

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