
STARS in 3D
UNCHARTED TERRITORY
WE ARE CBR

STARS IN 3D PROGRAM

Stars in 3D is an exquisite experience of immersive beauty – visuals, movement and music, founded in extraordinary science and technical skills and presented by women of all abilities.

A celebration of the Universe, from chromosomes to mapping the galaxy. The very essence of humanity explored within stunning visualisations of the universe featuring the music, movement and technology.

Stars in 3D is the premier season of the Chamaeleon Collective, Canberra's first inclusive dance company who are joined by 6 professional dancers, directed by **Liz Lea**, ACT Artist of the Year.

Featuring the **Chamaeleon Collective** and collaborators with special guests **Professor Susan Scott** and **Dr Brad Tucker.** Created in collaboration with ASTRO 3D and supported by Recovery VR and QL2 Dance.

Presented as part of the Uncharted Territory Festival.

We acknowledge the traditional owners of the lands upon which Stars in 3D has been created, the Ngunnawal and Ngambri people and pay our respects to Elders, past, present and emerging. This land was never ceded.

Directed by Liz Lea

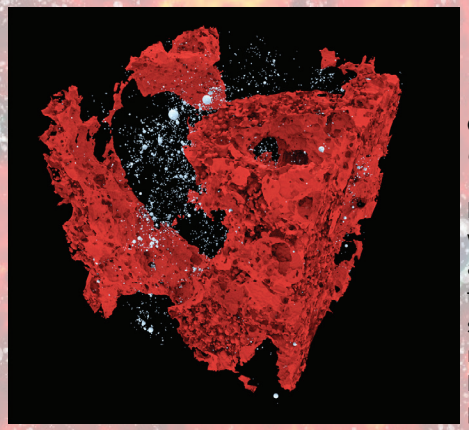
Performed by the Chamaeleon Collective:
Brydie Bulley, Anna Connelly, Neave Darmody, Rainbow Knight, Katie Senior
Karin Adriansdatter, Patricia Hayes Cavanagh, Jareen Jee, Sarah Long, Emily Smith
and Liz Lea

Works choreographed by the company

Technical Manager by Arianna Bosi

ASTRO 3D wonder woman, Ingrid McCarthy

Many thanks to the Board of The Stellar Company and to the QL2 team.



Film 1 - The Epoch of Reionisation

Computer Simulation - *Paul Geil & Simon Mutch - University of Melbourne*

Not long after the Big Bang, the universe was filled with an extremely dense fog of neutral hydrogen atoms (a proton, a neutron and an electron). As the first stars emerged, their energy heated the surrounding hydrogen gas, causing ionisation (or removing the electrons). At first, these areas were like small bubbles, and as the bubbles grew and punched ever-larger holes into the neutral universe, they eventually began to overlap, enabling ionising radiation to travel further and further.

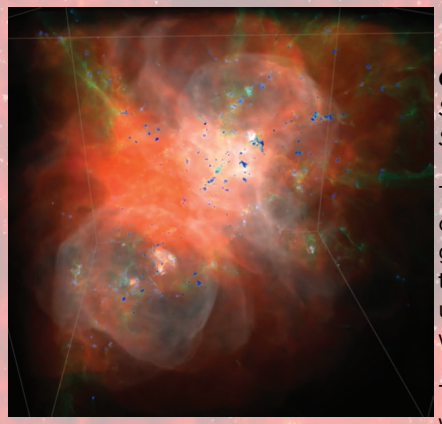
Films 2-4 - The First Stars

Computer Simulations - *John Wise, Tom Abel, Ralf Haehler (Kavli Institute for Particle Physics and Cosmology)*

Sajay Sunny Mathew, Christoph Fedderath and Amit Seta (Australian National University

The dynamical and changing nature, and the involvement of a wide range of complex physical mechanisms make acquiring a comprehensive picture of first star formation a challenging task.

This hydrodymical computer simulations use the laws of physics, mathematical algorithms and our understanding of gravity, turbulence, magnetic fields, radiation and feedback mechanisms to simulate the creation and evolution of the first stars in the universe.

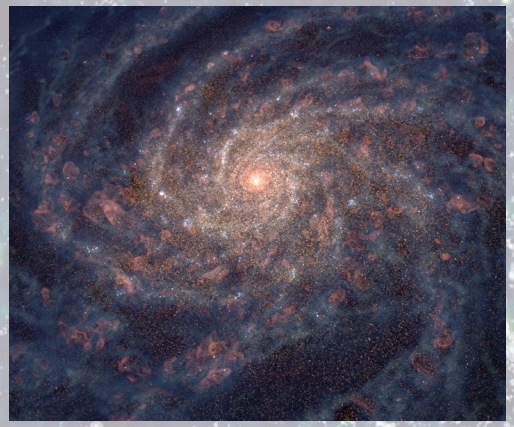


Film 5 - Galaxy Formation

Computer Simulations - *Lars Hernquist (Harvard Smithsonian Centre for Astrophysics) and Volker Springel (HITS)*

The IllustrisTNG project is an ongoing series of large, cosmological magnetrohydrodymical simulations of galaxy formation. These simulations aim to illuminate the physical processes that drive galaxy formation - to understand how galaxies evolve into the structures that we can observe in the night sky.

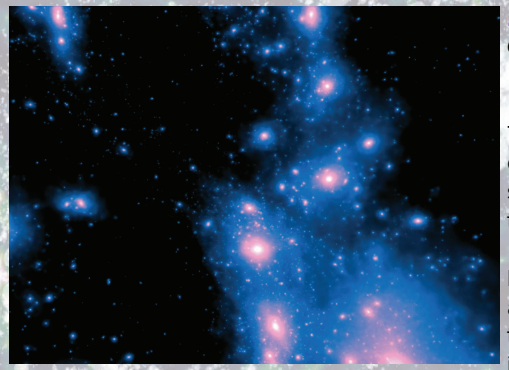
The simulations use state-of-the-art numerical code which includes a comprehensive physical model that runs on some of the largest supercomputers in the world.



Film 6 - Galaxy Evolution

Computer Simulations - *Nathan Gouldbaum (University of Illinois)*

These simulations of Milky-Way like disk galaxies are to understand how global properties of disk galaxies influence the formation of stellar nurseries and how the energy deposited by newborn massive stars feeds back into global disk scales, creating a steady-state system, much like our galaxy has experienced for billions of years.

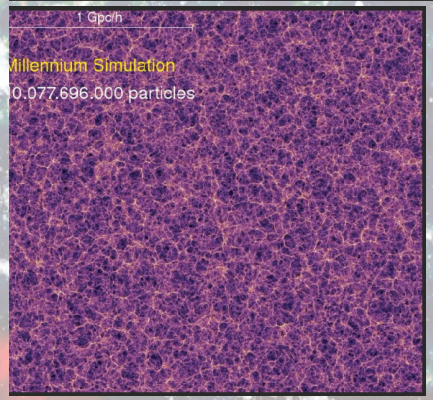


Film 7 - Cosmos Evolution

Computer Simulations - *Mark Vogelsberger and Volker Springel (illustris)*

These large-scale cosmological simulations demonstrate the evolution of the universe, spanning the initial conditions of the Big Bang, to the present day, 13.8 billion years later.

Modelling is based on the most precise data and calculations available, and are compared to actual findings in the observable universe in order to better understand the nature of the universe, including galaxy formation, dark matter and dark energy.



Film 8 - Matter Evolution

Computer Simulations - *Virgo consortium*

The Millenium run is a computer simulation used to investigate how the distribution of matter in the universe has evolved over time and how observed galaxies were formed.

It traces over 10 billion “particles” - each particle represents approximately a billion solar masses of dark matter. The region of space simulated is a cube of about 2 billion light years as its length and contains about 20 million galaxies.

What does it mean to have an extra chromosome? Dance artist Katie Senior takes you on a journey of life, love, laughter and walks in nature - in fabulous style...

Choreographers: Katie Senior & Liz Lea
Performers: Katie Senior with Liz Lea
Directors: Liz Lea & Margaret Senior

IGNITE Film makers: Justin Ray, Robert Nugent, Aaron King

Music X174 by Topology, Despactio by Justin Beiber, Green Onions by Booker T and the MGs and Beautiful by Sara Vancea, Ross Garrett and Cris Clucas.

The Chameleon Collective are a boutique offering of artistic excellence in the inclusive and accessible arts field. The collective epitomizes the vision of a forward looking, Canberra. The next generation of artists being invested in by the current generation of artists living with and without disability. The Chamaeleon Collective was founded in 2020, named after the constellation and reptile, both constant and adaptable. They are part of The Stellar Company.

Chamaeleon arises from the need for community dancers living with disability to channel their energies and talents into a professional parts development program that is supportive, accessible and at the leading edge of contemporary performance. We want to see equal access and employment opportunities for artists living with disability - Professional, Capable and Fabulous. Directed by Liz Lea and Karin Adriansdatter.