



ENTROPY

Astronomy staged as a live performance

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Entropy is a collaboration between artists and scientists whose primary objective is to creatively communicate scientific ideas in the realm of astrophysics.

Components of the project include lectures by scientists Dr Katarina Markovic and Dr Zazralt Magic detailing the creation and death of the universe, a live electronic score by influential sonic pioneers of Dopplereffekt, and a unique visual platform presenting scientific visualizations of real data staged and directed by artists of the Antivj label.

The combination of these elements accompany the narratives and abstractions of the scientific presentation.

In Entropy, stellar astrophysics, physical cosmology, scientific data visualizations and futuristic soundscapes are combined in a immersive experience.

A short temporary video teaser is available here at: <https://vimeo.com/97221762> (pw: entropy)

TEAM

Dr. Katarina Markovic (Scientist / Physical Cosmology)

Dr. Zazralt Magic (Scientist / Stellar Astrophysics)

Heinrich Mueller (Dopplereffekt / Music)

To Nhan Le Thi (Dopplereffekt / Music)

Yannick Jacquet (Antivj / Scenography + Artistic Direction)

Elie Zananiri (Lead software developer)

Nicolas Boritch (Antivj / Producer)

Benoit Simon (Antivj / Technical director)

Dr. Katarina Markovic / Physical cosmology

ICG, Portsmouth, UK

A researcher at the Institute of Cosmology and Gravitation (ICG) at the University of Portsmouth, specialised in Physical Cosmology. Her research interests lie in the so-called dark sector of the universe. She is a current member of the Euclid Consortium, working on ESA's Euclid Space Telescope, which is to be launched in 2020. In her presentations she draws on work supported by the UK Space Agency, the Science and Technology Facilities Council (STFC), Max Planck Institute for Extraterrestrial Physics in Munich and the Transregional Collaborative Research Centre TRR 33 - The Dark Universe in Germany.

Dr. Zazralt Magic / Stellar astrophysics

Niels Bohr Institute, Copenhagen, DK

A researcher in astrophysics at the Niels Bohr Institute (NBI) in Copenhagen, Denmark. His research interests are the solar corona, stellar atmospheres and stellar evolution. He is a member of the Stagger-grid project, a collaboration for the construction of a comprehensive grid of 3D hydrodynamic model atmospheres of late-type stars. His work has received support from the Max-Planck-Institute for Astrophysics in Munich and the NBI.

Dopplereffekt / Music

Munich, DE

Dopplereffekt are the mysterious duo of sonic pioneers originating out of Detroit fronted by Gerald Donald (Heinrich Mueller/Der Zyklus, Japanese Telecom, Arpanet as well as one half of Drexciya).

Antivj / Artistic direction, Scenography, Technical direction

Brussels/Paris, BE/FR

Antivj is a European visual label focusing on projects and artists working at the intersection of art, technology, design and architecture, to create immersive installation and performance work. Antivj will be responsible for the stage design, visual content and software development.

SCENOGRAPHY

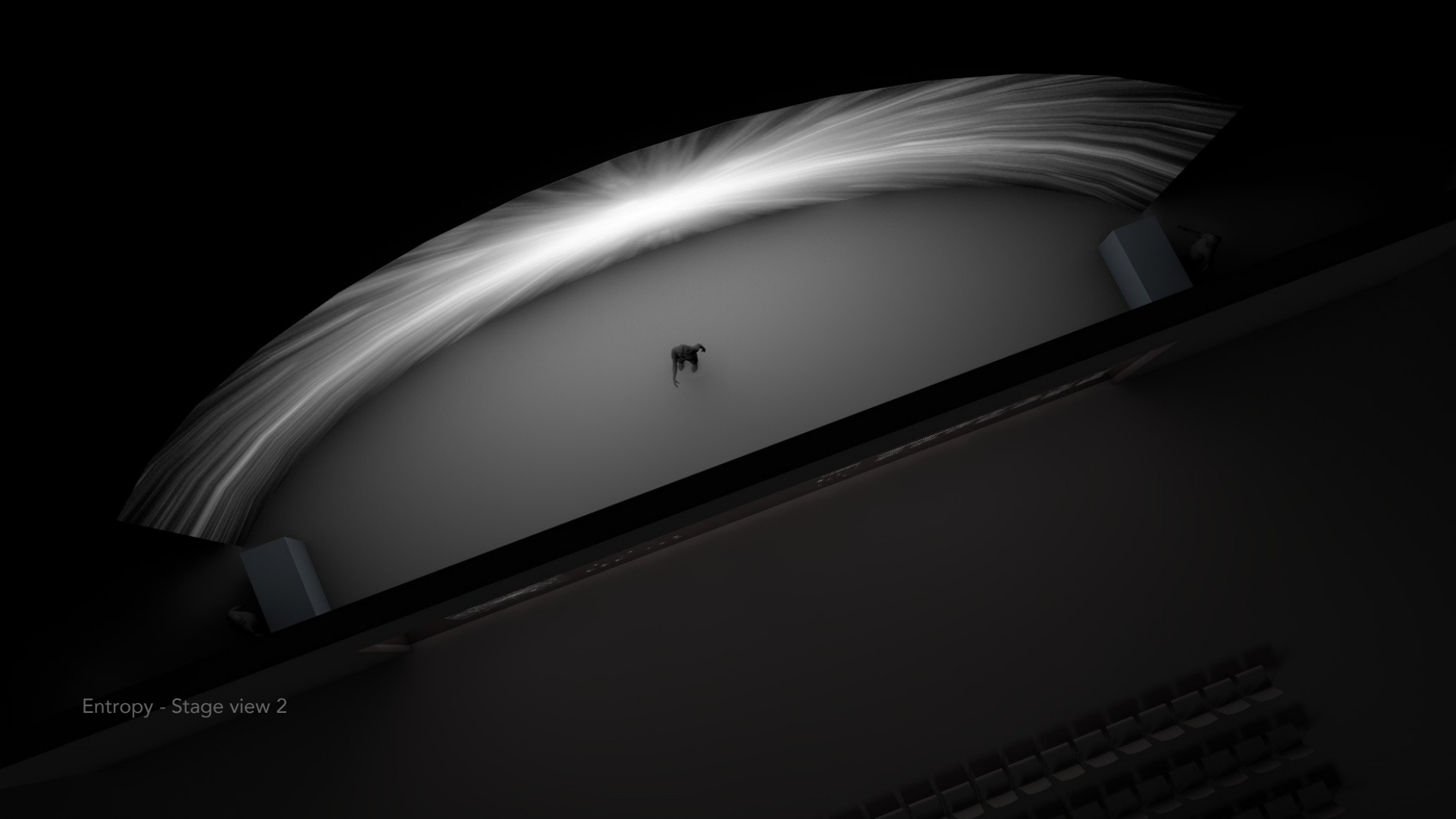
Dual-screen set-up

Real-time data visualizations

Open Source software



Entropy - Stage view 1



Entropy - Stage view 2



Entropy - Stage view 3

Entropy - Stage view 4



LECTURE

The lecture covers two main topics of astronomy that are told by two experts in the corresponding fields, but interwoven into a continuous performance:

1. The Life of Our Universe ... by Katarina Markovic:

The talk is a chronological presentation of the evolution of our universe. It starts with the process of cosmological inflation, which corresponds to the information limit, before which nothing can be known. The talk follows the subsequent expansion and cooling of the universe, which is accompanied by new emerging elementary particles and forces through so-called phase transitions. It describes the propagation of acoustic waves through the photo-baryonic plasma and the emission of the Cosmic Microwave Background. It discusses the formation of large structures in the universe, like the first stars, galaxies and the dark matter web. It mentions the accelerated expansion of the universe, for the discovery of which the Nobel Prize was awarded in 2011. It introduces the concept of the mysterious dark energy and the evidence that established this theory. Finally, it presents the predicted death of the universe as it is understood within contemporary science.

2. The Lives of Stars ... by Zazralt Magic:

The talk also covers the evolution of stars and elucidates a number of key questions. Even though distant stars in the firmament seem invariant, these pass through life-cycles on larger timescales astonishingly similar to those on earth: Stars are born, they live their lives and cease eventually. The talk begins with the formation of protostars from the collapse of vast cold interstellar clouds. Subsequently, the chemical composition and the internal structure, set by the energy transport, of stars are depicted in detail. Then, the talk proceeds with the primary energy source of luminescent celestial bodies, namely the nuclear fusion of lighter elements into heavier ones, which is responsible for the present elemental diversity of the otherwise rather simple early universe. Finally, we illustrate the grand finale of stars. While less massive stars will eject their envelope into a magnificent planetary nebula, thereby unveiling a white dwarf, the more massive stars will explode violently into brilliant supernovae, leaving behind the most extraordinary stellar objects: neutron stars or black holes.

PARTNERS

CURRENT PARTNERS

Tim Terpstra / TodaysArt, Amsterdam, NL

Co-producer <http://www.todaysart.org>

TodaysArt is a non-profit international organisation and network based in the Netherlands specialised in the presentation, research, development, production and promotion within the field of digital culture, contemporary arts and creativity.

STFC Public Engagement Large Awards Scheme, UK, <http://www.stfc.ac.uk/1839.aspx>

Arcadi Ile de France, FR <http://www.arcadi.fr>

University of Portsmouth, UK <http://www.port.ac.uk/faculty-of-creative-and-cultural-industries>

Dr. Jennifer Gupta, ICG Portsmouth, (workshop development), UK <http://jengupta.com>

PARTNERS IN DISCUSSION

European Space Agency <http://www.esa.int>

British Science Festival, UK <http://www.britishtscienceassociation.org>

SHOW PARTNERS

Entropy will be presented in different transdisciplinary festivals in 2016/17.

The following events, promoters and venues have expressed their interest or confirmed to include the performance as a highlight of their programs:

Today'sArt.NL - The Hague – Confirmed

Nemo Biennale – Paris – Confirmed

The Barbican - UK – Confirmed

Moma PS1 – US - Interested

Eyeo – US - Interested

Romaeuropa - Rome – Interested

Scopitone, Nantes - Contemplated

Codice Cultura - Torino - Contemplated

Unsound Festival - Krakow - Contemplated

Today'sArt.JP - Tokyo/Kobe - Confirmed

CTM Festival / Berlin Atonal - Berlin - Contemplated

Mutek, Montreal – Contemplated

FutureEverything - Manchester - Contemplated

British Science Association - London - Confirmed

Holland Festival - Amsterdam - Interested

ICAS (International Cities of Advanced Sound & related arts) - Network of events

CONTACT

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<https://github.com/Entropy>