SUPERNOVA (CASSIOPEIA A)

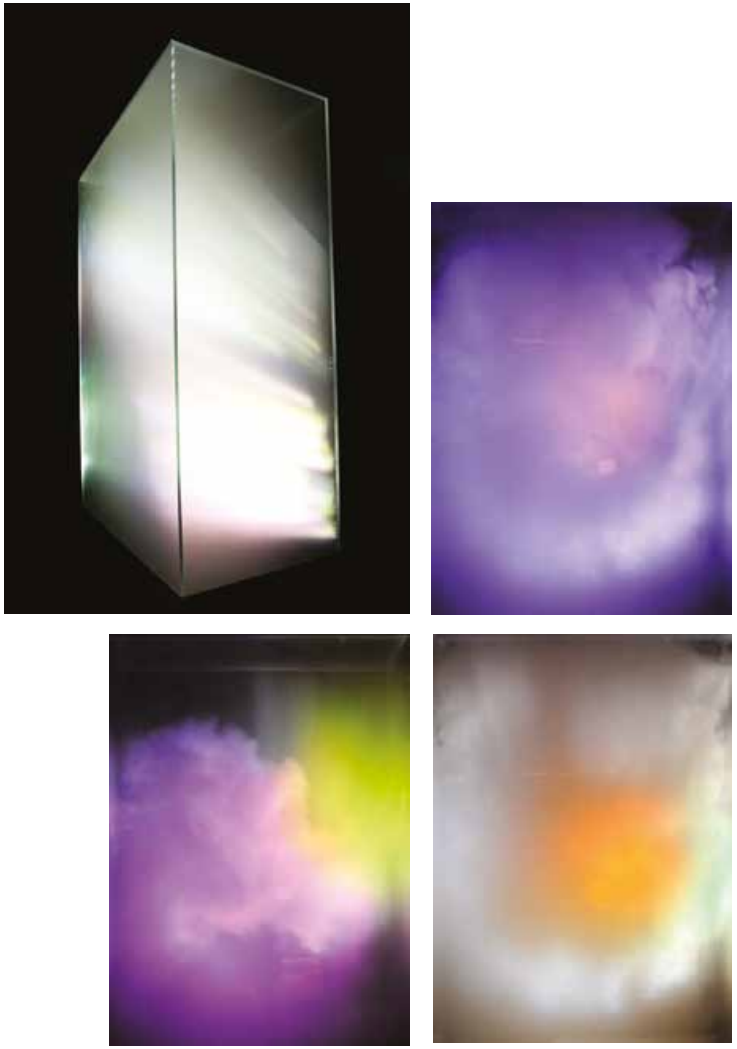
Interview with Félicie d'Estienne d'Orves
Arie Altena

The installation ***Supernova (Cassiopeia A)*** by Félicie d'Estienne d'Orves depicts an imaginary explosion of a supernova and the birth of matter. Supernovae are extremely luminous stellar explosions that produce a burst of radiation that can outshine an entire galaxy. The explosion expels the star's material and forces a shockwave into the surrounding interstellar space. This interview took place two days before the opening of the exhibition ***The Dark Universe***, which featured ***Supernova (Cassiopeia A)***.

Arie Altena Supernovae are quite a complex scientific subject matter to make an artwork about. How did the project evolve?

Félicie d'Estienne d'Orves The project started because I met Fabio Acero, a young astrophysicist who works on supernovae. He was studying Cassiopeia A, one the most observed supernova remnants. Supernova is the word for the bright explosion, and Cassiopeia A refers to the remnants of that explosion. The visual aesthetics of supernovae remnants are fascinating. The scientific representations are extremely colourful. The colours refer to the composition of the nebula that remains after a supernova explosion. The colours aren't really there, they are a translation and correspond to different wavelengths emitted by different elements – for instance iron, or carbon – created in the explosion. A supernova remnant creates heavy elements, such as iron; it is a cosmic motor. Fabio and I originally thought of creating an immersive experience. We wanted to make a huge cloud, and we wanted the audience to be in this cloud, this nebula. But we realised that immersion was not the best way to experience the three-dimensionality of the nebula. We then tried to come up with a way to metaphorically trap the explosion of the supernova and observe it from the outside, as a laboratory experiment. Actually *Supernova (Cassiopeia A)* is part of a larger research project. I'd like to adapt the project for the theatre,

Félicie d'Estienne d'Orves, *Supernova (Cassiopeia A)*, installation, realised in collaboration with Fabio Acero (astrophysicist), music by Laurent Dailleau, produced by Arcadi and Maison des Arts de Créteil, 2012, *The Dark Universe* exhibition, NASA – New Art Space Amsterdam, Sonic Acts, 2013.



in collaboration with a composer who writes a piece of music on the theme of supernova. It should be an abstract show with a smoke nebula transforming on the stage.

AA What is the larger research project about?

FEO I like to make series of works on the same theme. Both *Supernova (Cassiopeia A)* and my work *Eclipse* are part of *Cosmos*, a series of works in which I take natural events as my inspiration. I translate natural events into very intimate visual experiences. The works in this series are quite abstract and usually consist of shapes of light. With light there is a direct connection to science, because a lot of the scientific experiments in physics and astrophysics measure wavelengths. The visualisations that come out of measured wavelengths are like Photoshop picture layers. We don't always see what is real in the pictures because we don't see how many layers of interpretations and translation are present. But my works are primarily about perception and intimate experience. *Supernova (Cassiopeia A)* is not very realistic and should not be mistaken for a scientific visualisation. Instead I try to create a spatial experience. That is also why I always try to find a link between sound and light and try to provoke synaesthesia effects for the audience. While watching the piece people see things that spring from their own minds, and some feel this as an intimate, interior experience.

AA Can you explain how the piece functions technically?

FEO *Supernova (Cassiopeia A)* is in a way very simple and lo-tech. Smoke and fog are diffused in a transparent plexiglass box that stands on a metal base. The smoke appears and disappears. I project a video from the back onto the smoke. The spectator sees a 3D image because the video beam is diffused on the smoke. In reality the supernova remnant is a faded nebula. I cannot really present it like that, so instead I made a smokescreen, trapped in a plexiglass box. There are five fans in the box, run by a computer program, that make the smoke move in certain ways inside the box. There is also a soundtrack by Laurent Dailleau. We composed the piece together – we discussed how I was composing the light, and he the sound, and how the sound could bring the nebula to life. The piece lasts about fifteen minutes, and then it loops. I like to work with musicians who engage with the piece in a serious way, and who bring something to its development. I spent time with Fabio and Laurent during a residence at Maison des Arts de Créteil, working together on the theme and the realisation of this piece.

AA What are the video images that you project on the smoke?

FEO They are based on scientific images of Cassiopeia A. When we began the project the first 3D images of supernovae remnants had just been made. I took my inspiration from the scientific images, and graphically interpreted them. If you really know supernovae, you might be able to see that I used images of Cassiopeia A and not another supernova remnant, but it's really difficult to recognise. As I said, the scientific images are already abstract representations. We see a supernova as white, not as a colourful cloud. The explosion emits lights in all wavelengths from radio to gamma rays, but because our eyes are only sensitive to optical wavelengths, we see it as white. I kept the colours because they indicate that there are different types of matter in the exploded supernova.

AA The work is not entirely abstract...

FEO There is definitely a narrative element. It's the story of a supernova exploding and what happens after that.

There are different steps in the narrative. First there is the end of the life of a star. The star is pulsing. Then you have a figurative explosion, which is absolutely not what happens in reality. In reality it happens so fast that we cannot see it. After the explosion you have an expansion of many colours, which represent the different materials that make up the supernova nebula. That's the stardust that makes up the Earth, other planets, and life itself. At the end of that cycle all the different colours merge into a regular circle of white light.

AA Is it in any way close to how popular science visualises and explains these processes?

FEO *Supernova (Cassiopeia A)* could definitely not be exhibited in a scientific exhibition. It isn't close enough to reality. The piece has sound as well, and there is no sound in space. I used the sound so the audience can experience the work more physically. Although I'm not creating true scientific visualisations I did ask Fabio if he could find me the most current information on supernovae, because our knowledge of them is increasing fast. For instance, we wanted the real-time positioning of the different elements of the supernova explosion, but he told me that wasn't possible. Science doesn't know it precisely enough. But when we know it, we will use it. I would have loved to make a real-time supernova, but then the piece would maybe have a duration of ten years instead of fifteen minutes, and everything would be moving very, very slowly, and you would only see a difference if you observed it over a year. It all happens on such a different time scale than the one in which we live. That is very difficult to grasp.

AA You just said that you want to create spatial experiences with your work...

FEO What interests me in my pieces is creating an experience for the body, so that each spectator has a different perceptual experience, and maybe gains new knowledge of his perceptions and his own body. That's the basis of my work. That's why I work with space, with sculpture in space, and why I create interactions in space. The way spectators physically react to my pieces is central to my installations. My work is about time, sensation, and changing perception – leading to yet further questions.