

**Painting the Invisible:
Cosmic Sublime in The Digital Age**

By

Maria Constantinescu BFA

Submitted in partial fulfilment of the
Requirements for the Degree of
Master of Fine Art

National Art School

December 2020

Abstract

My research project *Painting the Invisible: Cosmic Sublime in The Digital Age* investigates different modalities in which information about the universe and related theories of the sublime are translated into contemporary works of art, as a continuum of an artistic tradition nascent in the 18th-century Romanticism. Through painting and video, my studio practice focuses on modes of making the unseen visible, presenting the unrepresentable, and transformation metaphorically linked with alchemy.

With this project, I explore the evolution of the 18th-century theories of the sublime into contemporary discourse, and the influence of theoretical thinking on the work of Romantic painters, abstract painting and contemporary art. The theoretical arguments of philosophers Edmund Burke and Immanuel Kant, as well as contemporary commentators on the sublime including Jean-François Lyotard, Paul Crowther, Eric Kluitenberg, and Elizabeth A. Kessler are also examined.

The work of artists relevant to my research, in particular Jackson Pollock, Yves Klein, Katie Paterson, Semiconductor and Ryoji Ikeda is analysed, and their approach to interpreting notions of the cosmic sublime, space, and transformation through art-making processes is considered in relation to my own practice.

The outcome of my research is a series of paintings and videos that attempt to elicit the feelings and state of mind associated with the experience of the cosmic sublime.

Acknowledgements

I would like to acknowledge the help and guidance of my supervisors Susan Andrews and Dr Ian Greig, as well as the valuable advice of Dr Stephen Little, Dr Harley Ives and Dr Molly Duggins.

To my husband Dan, all my love and gratitude for your loving support, patience, and constant kindness.

Declaration of Originality

I hereby declare that this submission is my own work and to the best of my knowledge it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree at the National Art School or any other educational institution, except where due acknowledgement is made in the exegesis.

I also declare that the intellectual content and visual record of studio work of this exegesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.

Signed: _____

Date: _____

Contents

Abstract	2
Acknowledgements	3
Declaration of Originality	4
Contents	5
List of Illustrations	6
Introduction	9
Chapter 1: Cosmos and The Sublime	11
1.1 Images of Outer Space	11
1.2 The Romantic Sublime	15
1.3 Abstraction and The Sublime	21
1.4 Contemporary Cosmic Sublime	24
Chapter 2: Painting and The Cosmic Sublime	28
2.1 Jackson Pollock	28
2.2 Yves Klein	32
2.3 Alchemy and Painting	38
Chapter 3: Contemporary Practice and The Cosmic Sublime	42
3.1 Katie Paterson	42
3.2 Semiconductor	46
3.3 Ryoji Ikeda	50
3.4 Digital Video	52
Conclusion	54
Bibliography	55

List of Illustrations

Figure 1. David Malin, <i>The Horsehead Nebula</i> , 1978	12
Figure 2. David Malin, <i>The Horsehead Nebula</i> , 2007	12
Figure 3. Maria Constantinescu, <i>Through the Lens: Darkness, R, G, B, Light</i> , 2020	13
Figure 4. Maria Constantinescu, <i>H2</i> , 2020	14
Figure 5. Andrew Ainslie Common, " <i>Photograph of the Orion Nebula (M42)</i> ", 1883	15
Figure 6. Caspar David Friedrich, <i>Man and Woman Contemplating the Moon</i> , cc 1824	16
Figure 7. Joseph Mallord William Turner, <i>Snow Storm: Steam-Boat off a Harbour's Mouth</i> , 1842	17
Figure 8. NASA's Voyager 1, <i>The Pale Blue Dot</i> , 1990	18
Figure 9. Kazimir Malevich, <i>Black Square</i> , 1915	22
Figure 10. Barnett Newman, <i>Vir Heroicus Sublimis</i> , 1950-51	23
Figure 11. The Hubble telescope, <i>The Pillars of Creation in the Eagle Nebula</i> , 1995	25
Figure 12. Thomas Moran, <i>Cliffs of the Upper Colorado River, Wyoming Territory</i> , 1882	25
Figure 13. Hubble Heritage Team, <i>Star Cluster NGC 602 in the Small Magellanic Cloud</i> , 2004	26
Figure 14. Albert Bierstadt, <i>A Storm in the Rocky Mountains, Mt. Rosalie</i> , 1866	26
Figure 15. Jackson Pollock, <i>Constellation</i> , 1946	29
Figure 16. Jackson Pollock, <i>Reflection of the Big Dipper</i> , 1947	30

Figure 17. Jackson Pollock, <i>Galaxy</i> , 1947	30
Figure 18. Jackson Pollock, <i>Shooting Star</i> , 1947	31
Figure 19. Jackson Pollock, <i>Comet</i> , 1947	31
Figure 20. Yves Klein, <i>Untitled Cosmogony (COS 43)</i> , 1960	33
Figure 21. Yves Klein, <i>Mouth of the Loup River (COS 4)</i> , 1960	34
Figure 22. Yves Klein, <i>Untitled Fire Painting (F 81)</i> , cc 1961	34
Figure 23. Yves Klein, <i>Blue Planetary Relief (RP 18)</i> , 1961	35
Figure 24. Yves Klein, <i>Pink Planetary Relief "Lune I" (RP 22)</i> , 1961	36
Figure 25. Maria Constantinescu, <i>DM1_1986</i> , 2019	37
Figure 26. Maria Constantinescu, <i>Azophi_964</i> , 2019	37
Figure 27. Maria Constantinescu, <i>Accretion</i> , 2019	39
Figure 28. Maria Constantinescu, <i>Advent</i> , 2019	39
Figure 29. Maria Constantinescu, <i>Transmutation</i> , 2019	39
Figure 30. Maria Constantinescu, <i>Spectrum</i> , 2019	39
Figure 31. Maria Constantinescu, <i>Flux</i> , 2019	40
Figure 32. Maria Constantinescu, <i>Luna</i> , 2020	40
Figure 33. Maria Constantinescu, <i>Halo</i> , 2019	41
Figure 34. Maria Constantinescu, <i>Dark Nimbus</i> , 2019	41
Figure 35. Maria Constantinescu, <i>Close-Up</i> , 2020	41
Figure 36. Katie Paterson, <i>Ancient darkness TV</i> , 2009	43
Figure 37. Katie Paterson, <i>History of Darkness</i> , 2011	44
Figure 38. Katie Paterson, <i>History of Darkness, Photograph 7/∞</i> , 2011	44

Figure 39 & 40. Katie Paterson, <i>History of Darkness</i> , close-ups, 2011	45
Figure 41. A Semiconductor work by Ruth Jarman and Joe Gerhardt, <i>Catching the Light</i> , 2014	48
Figure 42. A Semiconductor work by Ruth Jarman and Joe Gerhardt, <i>Brilliant Noise</i> , 2006	49
Figure 43. A Semiconductor work by Ruth Jarman and Joe Gerhardt, <i>Black Rain</i> , 2009	49
Figure 44. Ryoji Ikeda, <i>data-verse 1</i> , 2019	51
Figure 45. Ryoji Ikeda, <i>test pattern [n°5]</i> , 2013	51
Figure 46. Maria Constantinescu, <i>In Perpetuum</i> , 2020	53

Introduction

"Imagination will often carry us to worlds that never were. But without it we go nowhere."

Carl Sagan, *Cosmos*, 1983.

My project entitled *Painting the Invisible: Cosmic Sublime in The Digital Age* investigates modes in which information about the universe and associated theories of the sublime inform contemporary art practice. The title refers to my painting practice expanding into contemporary digital technologies in search for new approaches of exploring the concept of the sublime.

The idea for the project formed when I came across a number of outstanding photographs by astronomer David Malin, displaying galaxies, nebulae, comets, and the light of cosmic events emerging at extraordinary distances in outer space. My project attempts to translate and express the feelings of wonder and amazement I experienced while viewing space images. By using the materiality of paint and digital video compositions, my process highlights the concepts of making the unseen visible and presenting the unrepresentable. I also consider the notion of transformation, which is metaphorically linked with alchemical processes.

The exegesis begins with an outline of the themes significant in the development of my project. In **Chapter 1: Cosmos and The Sublime** I introduce and discuss astrophotography, the catalysts of my project, and some of the techniques involved in translating data collected by space exploration technology into images of the cosmos. **Chapter 1** aims to answer the questions: How did the concept of cosmic sublime evolve from 18th-century Romantic philosophy into its contemporary interpretations? How have artists responded to aesthetic theories of the sublime since Edmund Burke and Immanuel Kant, and in which ways their approach has been shaped by socio-economic, cultural and scientific developments over the years? Referring to my emotional response to space images, I investigate theories of the sublime as formulated by Burke and Kant in

the 18th century, and their influence on Romantic landscape painting. I examine the connections between aspects of the sublime concept and abstract painting, with references to the Kantian notions of the formless and presenting the unrepresentable, in relation to paintings by Kazimir Malevich and Barnett Newman. My research is supported with commentary of theorists including Jean-François Lyotard, Paul Crowther, and Renee van de Vall. Associations between Romantic landscape painting and contemporary astrophotography, introduced by American academic Elizabeth A. Kessler, are also outlined, connecting Kant's theories of the sublime with 21st-century cosmic imaging.

In **Chapter 2: Painting and The Cosmic Sublime**, I analyse the work of Jackson Pollock and Yves Klein, with emphasis on their interpretation of cosmic themes, and describe how their studio processes informed my own work. A selection of paintings, and details about my painting methodology are presented in this chapter, with commentary on metaphorical associations between alchemy and art practice.

Chapter 3: Contemporary Practice and The Cosmic Sublime establishes the connections between my project and the current practice of other contemporary artists. Works by Katie Paterson, Semiconductor, and Ryoji Ikeda are explored while evaluating the effectiveness of digital video in expressing aspects of the cosmic sublime.

Chapter 1: Cosmos and The Sublime

1.1 Images of Outer Space

While researching cosmic images in 2019, I discovered a remarkable book written by astronomer and photographic scientist David Malin (born 1941) entitled *Ancient Light: A Portrait of the Universe* (2009). The timely encounter with Malin's book prompted me to investigate astrophotography in more detail and contributed significantly to the development of my project, as cosmic photography is an effective method of making the unseen visible, a concept present throughout my work. David Malin worked for the Australian Astronomical Observatory from 1975 to 2001 and is famous for developing scientific processes used to take "inspirational and informative" colour photographs of outer space.¹ *Ancient Light: A Portrait of the Universe* presents a collection of Malin's black and white photographs of stars, comets, galaxies, nebulae, and other celestial objects, captured with a number of telescopes from around the world.² The book pays homage to the pioneers of astrophotography and displays images of the universe as observed before the introduction of colour astronomy images in the 1970s. David Malin was one of the first scientists to develop a system of adding colour to greyscale astrophotography, a process starting with long exposure glass negatives taken by powerful telescopes. In the book, he explains his method:

I made three separate exposures of the sky with special black and white plates and filters to record blue, green and red light as separate negatives. These images were later combined in the lab to make colour pictures, a technique which is trivial using today's digital software but was much more challenging using wet darkroom techniques.³

¹ "David Malin Images", davidmalin.com (website), accessed March 11, 2019, <https://www.davidmalin.com/>

² David Malin, *Ancient Light: A Portrait of the Universe*, (London: Phaidon Press, 2009), 10.

³ Malin, *Ancient Light: A Portrait of the Universe*, 7.



Figure 1. David Malin, *The Horsehead Nebula*, 1978, black and white photograph, UK Schmidt Telescope, © Australian Astronomical Observatory, credit: David Malin, AAO Image Archive.⁴



Figure 2. David Malin, *The Horsehead Nebula*, 2007, colour photograph made using UKTS plates taken in October, 1979, © Australian Astronomical Observatory, credit: David Malin, AAO Image Archive.⁵

Malin's black and white photograph, *The Horsehead Nebula* (1978), (fig.1) and the colourised version of the same image (2007), (fig. 2), in conjunction with the RGB filters process applied to obtain the colour image, inspired a group of five paintings I made, called *Through the Lens: Darkness, R, G, B, Light* (fig.3). The paintings refer to the scientific methods of adding colour to astrophotography and are linked to my research of the sublime by their references to cosmic

⁴ David Malin, *The Horsehead Nebula*, 1978, black and white photograph, AAO Image Archive, accessed June 1, 2019, <https://images.datacentral.org.au/malin/AAO4/46>

⁵ David Malin, *The Horsehead Nebula*, 2007, colour photograph, AAO Image Archive, accessed June 1, 2019, <https://images.datacentral.org.au/malin/AAO4/46>

images, as well as to light and darkness in space.⁶ The five canvases indicate the three primary colours of light: red, green, blue (*R, G, B*); all three primary colours combining to form white light (*Light*); and the absence of light (*Darkness*).⁷ The paintings *Darkness* and *Light* also suggest the void/darkness of space, and the light of stars.



Figure 3. Maria Constantinescu, *Through the Lens: Darkness, R, G, B, Light*, 2020, acrylic on canvas, each 93 x 93 cm.

Photographic plates were used until the 1970s for astrophotography. With advancements in technology, electronic imaging systems gradually replaced the plates. Other highly specialised instruments, like spectrographs were developed to study and interpret the electromagnetic data collected from space. My painting *H2* (fig. 4) refers to the science of spectroscopy and presents an abstract image of the chemical element hydrogen's absorption spectrum.⁸ An image looking similar to my painting is obtained when a beam of light travels through cool atmospheric hydrogen.⁹ I decided to make this colourless, odourless substance visible in a painting because hydrogen was the first to appear after the Big Bang and it is the most abundant chemical element in the universe. The two-panel format of the painting is suggestive of the two atoms present in the molecular state of the hydrogen gas.¹⁰

⁶ Pierre Markuse, "The Thing with Colors in Astrophotography", Photographing Space (website), accessed June 12, 2020, <https://photographingspace.com/ap-color/>

⁷ David Briggs, "Additive Mixing", The Dimensions of Colour (website), July 23, 2014, accessed March 17, 2019, <http://www.huevaluechroma.com/041.php>

⁸ "How are Spectra Produced? ", CSIRO (website), accessed June 4, 2020, <https://www.atnf.csiro.au/outreach/education/senior/astrophysics/spectroscopyhow.html>

⁹ "Broken Rainbows", Khan Academy (website), accessed April 11, 2020, <https://www.khanacademy.org/science/class-11-chemistry-india/xfbb6cb8fc2bd00c8:in-in-structure-of-atom/xfbb6cb8fc2bd00c8:in-in-bohr-s-model-of-hydrogen-atom/a/absorptionemission-lines>

¹⁰ Agata Blaszczyk-Boxe, "Facts about Hydrogen", Live Science (website), January 23, 2015, accessed June 29, 2020, <https://www.livescience.com/28466-hydrogen.html>



Figure 4. Maria Constantinescu, *H2*, 2020, acrylic on canvas, 220 x 145 cm (two panels, each 110 x 145 cm).

In *Ancient Light: A Portrait of the Universe*, Malin also writes about two major events in the development of space imaging. He recounts how in 1882 Scottish astronomer David Gill (1843 - 1914), located at Cape Town observatory in South Africa, decided to photograph a bright comet with a camera attached to a telescope. For the first time in the history of cosmic photography, the resulting long exposure image displayed a staggering number of stars previously unseen. Following this breakthrough, in 1883 English astrophotography pioneer Andrew Ainslie Common (1841 - 1903) used a telescope to photograph the Orion nebula in a similar manner. Due to the long exposure process employed, the resulting photograph revealed stars which were not visible to the human eye when looking through the very same telescope lens without a camera (fig. 5). These seminal developments contributed to the beginning of an era of astronomy when photography was "transformed from a way of recording the visible world into a detector of the unseen", as described by David Malin in his book.¹¹

¹¹ Malin, *Ancient Light: A Portrait of the Universe*, 9.



Figure 5. Andrew Ainslie Common, "*Photograph of the Orion Nebula (M42)*", 1883, London, ©The Board of Trustees of the London Science Museum, credit: Science Museum Group.¹²

1.2 The Romantic Sublime

My emotional experience on viewing images from space can be described as a sublime feeling of encountering the infinite scale of the cosmos: an overwhelming sensation of trying to grasp the meaning and the immensity of the universe, mixed with awe and deep appreciation for the technological advancements that made these images possible. American astronomer and author Carl Sagan (1934 - 1996) sums up this sensation at the beginning of his book *Cosmos* (1983):

The Cosmos is all that is or ever was or ever will be. Our feeblest contemplations of the Cosmos stir us - there is a tingling in the spine, a catch in the voice, a faint sensation, as if a distant memory of falling from a height. We know we are approaching the greatest of mysteries.¹³

The complex concept of the sublime has been described as a distinctive encounter in which sensations of delight and pleasure are mixed with the experience of being shocked or terrified by formidable and overwhelming circumstances, scenery,

¹² Andrew Ainslie Common, *Photograph of the Orion Nebula (M42)*, 1883, black and white photograph, Science Museum Group, accessed May 15, 2020, <https://collection.sciencemuseumgroup.org.uk/objects/co486047/photograph-of-the-great-nebula-in-orion-1883-black-and-white-prints-photographs-astrophotographs-star-clusters>

¹³ Carl Sagan, *Cosmos*, (New York: Random House Inc., 1983), 4.

sensations or concepts.¹⁴ The sublime was first described in such terms in the 18th-century writings of philosophers Edmund Burke (1729 - 1797) and Immanuel Kant (1724 - 1804). Burke's and Kant's aesthetic theories on the sublime gained momentum in the context of the late 18th-century Romanticism, when connections to nature through emotions and sensations became just as important as the rational and scientific Enlightenment ideals of the previous years. Romantic artists valued individualism, intuition and free emotional expression, "rejecting the didacticism of Neoclassical history painting in favour of imaginary and exotic subjects", and found inspiration in subject matter related to various aspects of nature.¹⁵ Painters of the Romantic period, for example Caspar David Friedrich (1774 - 1840) and Joseph Mallord William Turner (1775 - 1851), made work referencing the sublime by depicting evocative landscapes, and people overwhelmed by powerful natural phenomena (fig. 6, fig. 7).



Figure 6. Caspar David Friedrich, *Man and Woman Contemplating the Moon*, cc 1824, oil on canvas, 34 x 44 cm, credit: Wikipedia website.¹⁶

¹⁴ Damien Freeman, "Sublime: the pleasure of the overwhelming", NSW Art Gallery (website), accessed May 11, 2019, <https://www.artgallery.nsw.gov.au/calendar/sublime/>

¹⁵ Kathryn Calley Galitz, "Romanticism", The Metropolitan Museum of Art (website), October 2004, accessed March 22, 2020, http://www.metmuseum.org/toah/hd/roma/hd_roma.htm

¹⁶ Caspar David Friedrich, *Man and Woman Contemplating the Moon*, cc 1824, oil on canvas, Wikipedia, accessed March 4, 2020, https://en.wikipedia.org/wiki/Two_Men_Contemplating_the_Moon#/media/File:Caspar_David_Friedrich__Man_and_Woman_Contemplating_the_Moon_-_WGA08271.jpg



Figure 7. Joseph Mallord William Turner, *Snow Storm: Steam-Boat off a Harbour's Mouth*, 1842, oil on canvas, 91 x 122 cm, credit: Tate website.¹⁷

In 1757, Burke published his aesthetics treatise *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful*, in which he declared that the sublime is produced by such objects that cause dread, terror and fear of death.¹⁸ He also argued that sometimes the feeling of the sublime created by terror overcomes the reasoning faculties, preventing rational thinking.¹⁹ The sublime can be a pleasurable experience as well, Burke stated, however, one has to be in a position of safety, somehow removed from where the terrorising event happens, free from pain or immediate physical danger.²⁰ In "Part II" of *A Philosophical Enquiry*, Burke describes qualities of the sublime in a number of sections, some of their titles closely associated with cosmic attributes: "Obscurity", "Vastness", "Infinity", "Magnificence", and "Light". He refers to the immensity of the night sky and its staggering number of stars being the most evocative: "The starry heaven, though it occurs so very frequently to our view, never fails to excite an idea of grandeur. This cannot be owing to the stars themselves, separately considered. The number is certainly the cause."²¹

¹⁷ Joseph Mallord William Turner, *Snow Storm: Steam-Boat off a Harbour's Mouth*, 1842, oil on canvas, Tate UK, accessed March 4, 2020, <https://www.tate.org.uk/art/artworks/turner-snow-storm-steam-boat-off-a-harbours-mouth-n00530>

¹⁸ Edmund Burke and James T. Boulton, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (London: Routledge Classics, 2008), 39.

¹⁹ Burke and Boulton, *A Philosophical Enquiry*, 57.

²⁰ Burke and Boulton, *A Philosophical Enquiry*, 40.

²¹ Burke and Boulton, *A Philosophical Enquiry*, 77.

Burke's theories describe to a certain degree my feelings of wonder, but also unease when contemplating the sublime of cosmic images. Viewing the forces at play in outer space, the massive scale of celestial bodies, and the infinity of the cosmos, especially when compared with the frailty of human condition, can be frightening and overwhelming, but the experience is made bearable by the shelter of our unique "pale blue dot" (1990), (fig.8).²² Surrounded by the familiarity of Earth's space, the human mind – although it cannot fully comprehend concepts such as the immense number of galaxies and colossal distances measured in light years – transcends the initial moments of awe and terrified wonder and begins to ponder on those notions.

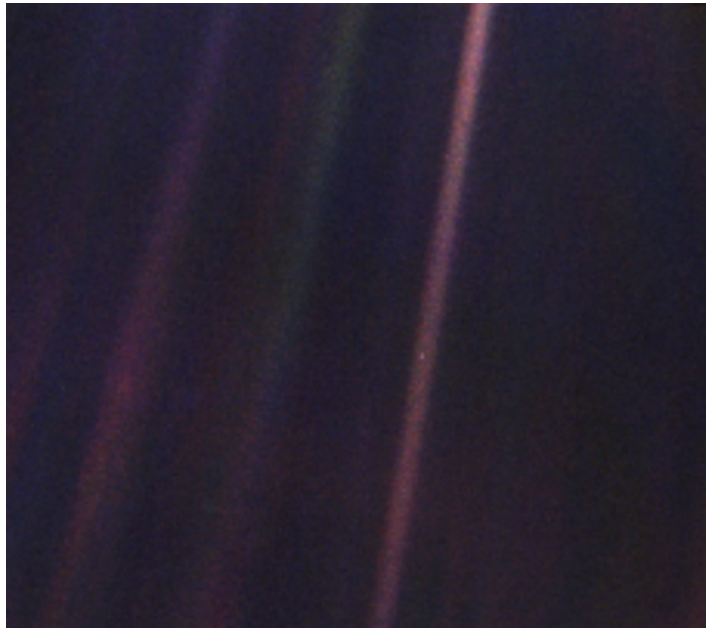


Figure 8. NASA's Voyager 1 at a distance of 6 billion km from the Sun, *The Pale Blue Dot*, February 14, 1990, photograph of Earth processed by Kevin M. Gill, credit: NASA website.²³

While Burke's account of the sublime describes the initial emotional response when encountering the superlatives of the universe, Kant develops the idea further, adding to it the intellectual aspect of the human mind processing the information and coming to terms with the sublime experience. In the chapter

²² Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space* (New York: Ballantine Books, 1997) 6 - 7.

²³ Kevin M. Gill, *Voyager 1's Pale Blue Dot*, 1990, photograph, NASA, accessed March 10, 2020, <https://solarsystem.nasa.gov/resources/536/voyager-1s-pale-blue-dot/>

"Analytic of the Sublime" of his 1790 book *Critique of the Power of Judgment*, Kant identifies two aspects of the sublime: the mathematically sublime and the dynamically sublime. The dynamically sublime echoes Burke's experiencing the sublime of powerful natural events from a place of safety.²⁴ But contrary to Burke, Kant believes that although violent natural occurrences can be viewed as frightful, one does not have to feel terrified, especially if not directly affected by them: "We can, however, consider an object as fearful without being afraid of it".²⁵ Although not afraid, one can still feel deep discomfort when realising how insignificant and powerless humans can be when faced with the colossal might of nature. At the same time, through the faculties of thinking and reason, one becomes aware that being overcome by fear is a choice. The understanding that feelings can be controlled with the power of reason induces the sense of pleasure characteristic of the dynamically sublime.²⁶

Kant's mathematically sublime refers to experiencing and pondering on things of enormous dimensions such as vast oceans, massive mountains or the boundless starry sky. One can have an idea of the scale of such objects, a mathematical representation expressed in measuring units like big numbers or light years. But when the senses attempt to perceive these dimensions and the mind tries to imagine the objects indicated by the measurements, they fail to create an image, a depiction of the mathematical information. As American Professor of Philosophy Donald W. Crawford (born 1938) states in his 2005 article on the philosophy of Kant, "no standard of sense apprehension is adequate to the idea of the infinite".²⁷ The distressing breakdown of perception and imagination creates suffering and a feeling of intense disappointment at the shortcomings of the human mind. However, despite the negative feelings, the capacity to reason and comprehend the "objects of great magnitude" using mathematical means gives way to a feeling of pleasure directly related to the

²⁴ Donald W. Crawford, "Kant", in *The Routledge Companion to Aesthetics*, eds. Berys Gaut and Dominic McIver Lopes (New York: Routledge, 2005), 58 - 60.

²⁵ Immanuel Kant, "Critique of the Power of Judgment", in *The Cambridge Edition of the Works of Immanuel Kant*, eds. Paul Guyer and Eric Matthews (New York: Cambridge University Press, 2002), 144.

²⁶ Crawford, "Kant", 60.

²⁷ Crawford, "Kant", 59.

ability of the human mind trying to understand a concept which cannot take shape inside the mind (the "formlessness" in nature).²⁸ Kant states that it is the human reasoning capacity which is sublime and not the colossal natural objects, therefore the sublime resides in the mind and not in nature:

Thus sublimity is not contained in anything in nature, but only in our mind, insofar as we can become conscious of being superior to nature within us and thus also to nature outside us (insofar as it influences us).²⁹

Kant also makes the distinction between beauty as representing well-formed objects in nature, and the sublime referring to "formless" objects which have no boundaries:

The beautiful in nature concerns the form of the object, which consists in limitation; the sublime, by contrast, is to be found in a formless object insofar as limitlessness is represented in it, or at its instance, and yet it is also thought as a totality.³⁰

Kant also declares that while art can represent the beautiful things in nature by copying, or mimicking their form, the sublime is perceived as a "negative pleasure" and cannot be described or represented.³¹ I am in many ways in agreement with Kant's statement that the sublime experience happens in the mind and it could be difficult to depict it through representation, but I would say that the objects causing the sublime feelings are also important. The unbounded and formless nature of such objects can be suggested with abstraction which, through the engagement of imagination and reasoning, provides access to the feelings of the sublime. In his book *The Kantian Sublime, From Morality to Art* (1989) British philosopher Paul Crowther (born 1953) suggests the term "expressive sublime" which "arises when an artist's originality is able to evoke a sense of his subject-matter's universal significance and, in so doing, makes vivid the extraordinary scope of artistic expression."³²

²⁸ Crawford, "Kant", 58 - 60.

²⁹ Kant, "Critique of the Power of Judgment", 147.

³⁰ Kant, "Critique of the Power of Judgment", 128.

³¹ Kant, "Critique of the Power of Judgment", 128 - 130.

³² Paul Crowther, *The Kantian Sublime, From Morality to Art* (Oxford: Clarendon Press, 1989), 162.

1.3 Abstraction and the Sublime

The concept of the sublime as formless and unrepresentable re-emerged in 20th-century abstract art. French philosopher and theorist Jean-François Lyotard (1924 - 1998) made the connection between the Kantian theory of the sublime and abstraction in his 1988 essay *The Sublime and the Avant-Garde*:

At the edge of the break, infinity, or the absoluteness of the Idea can be revealed in what Kant calls a negative presentation, or even a non-presentation. ... Even before romantic art had freed itself from classical and baroque figuration, the door had thus been opened to inquiries pointing toward abstract and Minimal art. Avant-gardism is thus present in germ in the Kantian aesthetic of the sublime.³³

In his 1982 article *Presenting the Unrepresentable: The Sublime*, Lyotard argues that the inability of mimetic figurative art to present the unrepresentable infinity and vastness of Kant's mathematical sublime, coupled with the arrival of photography, made the art of traditional painting "impossible". Documentation and representation became the domain of photography, and the avant-garde painters, at the beginning of the 20th century, were faced with the challenge of redefining painting. They questioned traditional painting conventions related to beauty and taste, like "tonality, linear perspective, the rendering of values, the frame, format", and made work which demanded the involvement of thinking and feeling, painting that entered the domain of the sublime in a new and radical way by demonstrating "the existence of the invisible in the visual".³⁴

Lyotard explains that although Kant's ideas of the sublime cannot be represented, arguing, "The universe is not demonstrable; neither the humanity, the end of history, the moment, the species, the good, the just, etc.", one can indicate these notions "through negative representation, which Kant called the abstract", with "ungraspable allusions to the invisible within the visual".³⁵ In his 2010 article *Transfiguration of the Avant-Garde: The Negative Dialectics of the Net*, Dutch

³³ Jean-François Lyotard, "The Sublime and the Avant-Garde//1988", in *The Sublime*, ed. Simon Morley (Cambridge: The MIT Press, 2010), 34.

³⁴ Jean-François Lyotard, "Presenting the Unrepresentable: The Sublime//1982", in *The Sublime*, ed. Simon Morley (Cambridge: The MIT Press, 2010), 131 - 134.

³⁵ Jean-François Lyotard, "Presenting the Unrepresentable: The Sublime//1982", 134.

theorist Eric Kluitenberg (born 1965) suggests Kazimir Malevich's *Black Square* (1915), (fig. 9), as an example for this concept:

Here the image has become a non-image: Devoid of shape, colour, texture or representation the painting had become a negative sign; an inverted sign for the absence of the image. But this absence did not point towards the impossibility of image production as such. Rather it had become a negative sign for the unrepresentable infinity of possible modes of visual invention.³⁶

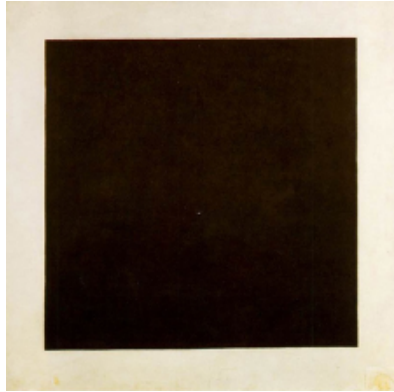


Figure 9. Kazimir Malevich, *Black Square*, 1915, oil on canvas, 79.5 x 79.5 cm, credit: Tate website.³⁷

While the Romantic painters created art about the relationship between humans and nature, the work of avant-garde painters made connections to human spirit and emotions. Abstract expressionist Barnett Newman (1905 - 1970) declares in his essay *The Sublime is Now* (1948) that artists, released from the constraints of representation and its associated history, can engage with "absolute emotions" and create art accessible to anyone: "Instead of making cathedrals out of Christ, man or 'life', we are making them out of ourselves, out of our own feelings."³⁸ Barnett Newman's 1951 painting *Vir Heroicus Sublimis* (fig. 10), which is Latin for "Man, heroic and sublime" consolidates his written statements. Dutch Professor Renee van de Vall (born 1956) explains in her

³⁶ Eric Kluitenberg, "Transfiguration of the Avant-Garde: The Negative Dialectics of the Net", Monoskop (website), December 2010, accessed June 23, 2020, https://monoskop.org/Eric_Kluitenberg

³⁷ Kazimir Malevich, *Black Square*, 1915, oil on canvas, Tate UK, accessed March 24, 2020, <https://www.tate.org.uk/art/research-publications/the-sublime/philip-shaw-kasimir-malevichs-black-square-r1141459>

³⁸ Barnett Newman, "The Sublime is Now//1948", in *The Sublime*, ed. Simon Morley (Cambridge: The MIT Press, 2010), 27.

1995 article *Silent Visions, Lyotard and the Sublime*, that Newman did not make a representation of the sublime with this painting, he rather created an actual sublime encounter by offering a startling and immersive event with the large scale of the work, the bold flat colour with no painterly distractions, and the sense of indeterminate space generated by the vertical "zips". The painting initially provides two emotional states associated with the sublime – shock and displeasure – by negating the conventions and "traditional artistic values" of representation (mimesis, spatial perspective, realistic forms and colours). These emotions are followed by the pleasure generated when imagination and intellect create an alternative viewing experience of the painting. As Renee van de Vall states, "At the same time that a work disrupts our feeling of spatial or temporal coherence, it can propose different forms of continuity, different logics of orientation."³⁹

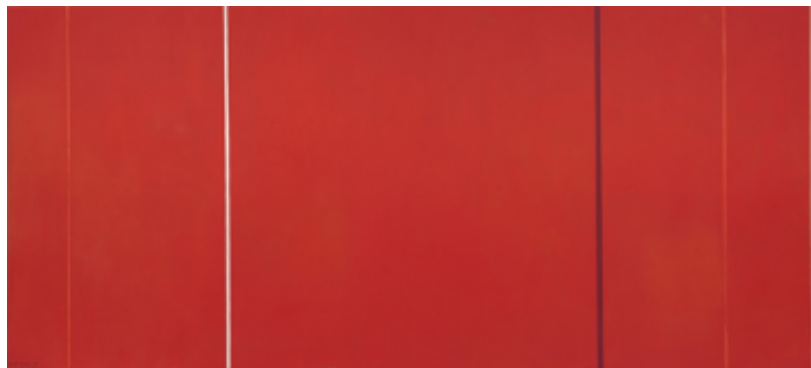


Figure 10. Barnett Newman, *Vir Heroicus Sublimis*, 1950-51, oil on canvas, 242.2 x 541.7 cm, © 2020 Barnett Newman Foundation, New York, credit: MoMA website.⁴⁰

Abstraction offers a viable form of expressing the formlessness of the sublime, as demonstrated by the work of avant-garde artists. Depiction of many cosmic images that might trigger feelings of the sublime cannot be representational, considering that they are only interpretations of data collected with computers. Abstract artworks informed by scientific images and suggestive of the cosmos through artistic rendition, therefore propose an effective mode of engagement with the artist's, as well as the viewer's, thinking and imagination.

³⁹ Renee van de Vall, "Silent Visions: Lyotard on the Sublime", *Art & Design*, Vol 10 1/2 (1995): 68 - 75.

⁴⁰ Barnett Newman, *Vir Heroicus Sublimis*, 1950-51, oil on canvas, MoMA, accessed August 14, 2020, <https://www.moma.org/collection/works/79250>

1.4 Contemporary Cosmic Sublime

American academic and researcher Elizabeth A. Kessler, in her 2012 book *Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime*, explores the relationship between the cosmic images captured by the Hubble telescope and the Romantic sublime artistic tradition of 19th-century American landscape painting, placing the Romantic concept of the cosmic sublime into a contemporary context. Kessler explains how NASA astronomers and scientists, since the launch of the Hubble telescope in 1990, established a particular aesthetic approach to converting the raw data collected by the telescope into vibrant pictures of "saturated colours, high contrast, and rich detail as well as majestic compositions and dramatic lighting", consequently developing a new way of imaging the universe.⁴¹ The high-tech capabilities of the space telescope were employed to compose and present images that resemble "earthly geological and meteorological formations, especially as depicted in Romantic landscapes of the American West".⁴² Kessler builds her argument by pointing to formal qualities of the Hubble images – colour combinations, textures, dramatic light and dark contrast, composition, framing, orientation – distinctly resembling landscapes painted by American artists like Albert Bierstadt (1830 - 1902) and Thomas Moran (1837 - 1926), (fig. 11 to fig. 14).⁴³

The aesthetic decisions to reference Romantic landscape painting were not deliberate, Kessler concluded after interviewing the Hubble Heritage Project team responsible for creating the images. The intention of the astronomers and image data experts was not only to accurately document the scientific data collected from space, but also to present it to the general public by using a visual vocabulary that expressed "awe, grandeur and mystery" and "a sense of great space and scale".⁴⁴ The resulting images engaged the imagination and the reasoning faculties of the human mind in ways reminiscent of the Kantian

⁴¹ Elizabeth A. Kessler, *Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime* (Minneapolis: University of Minnesota Press, 2012), 4.

⁴² Kessler, *Picturing the Cosmos*, 5.

⁴³ Kessler, *Picturing the Cosmos*, 28 - 43.

⁴⁴ Kessler, *Picturing the Cosmos*, 50 - 51.

mathematically sublime.⁴⁵ By connecting the Romantic depiction of nature in the 19th-century American landscape painting with the cosmic subject matter and the aesthetic style of the Hubble images, Kessler established a direct lineage between the Kantian sublime and contemporary imaging of the universe facilitated by astrophotography.⁴⁶

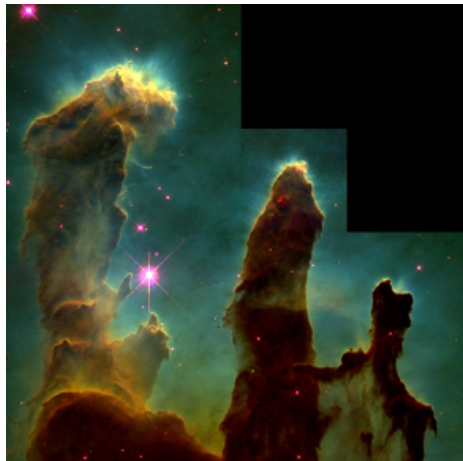


Figure 11. The Hubble telescope, *The Pillars of Creation in the Eagle Nebula*, 1995, composite image, credit: hubblesite.org, Jeff Hester and Paul Scowen (Arizona State University).⁴⁷



Figure 12. Thomas Moran, *Cliffs of the Upper Colorado River, Wyoming Territory*, 1882, oil on canvas, 40.5 x 61.0 cm, Smithsonian American Art Museum, credit: Wikimedia website.⁴⁸

⁴⁵ Kessler, *Picturing the Cosmos*, 226 - 227.

⁴⁶ Kessler, *Picturing the Cosmos*, 227.

⁴⁷ Jeff Hester and Paul Scowen, *The Pillars of Creation in the Eagle Nebula*, 1995, composite image, hubblesite.org, accessed May 10, 2020, <https://hubblesite.org/news/news-releases>

⁴⁸ Thomas Moran, *Cliffs of the Upper Colorado River, Wyoming Territory*, 1882, oil on canvas, Wikimedia, accessed May 13, 2020, https://commons.wikimedia.org/wiki/File:Cliffs_of_the_Upper_Colorado_River,_Wyoming_Territory_SAAM-1936.12.4_1.jpg



Figure 13. Hubble Heritage Team, *Star Cluster NGC 602 in the Small Magellanic Cloud*, Created: July 18, 2004, composite image, credit: NASA, ESA, Hubble Heritage Team.⁴⁹



Figure 14. Albert Bierstadt, *A Storm in the Rocky Mountains, Mt. Rosalie*, 1866, oil on canvas, 210.8 x 361.3 cm, copyright: Brooklyn Museum, credit: Wikiwand website.⁵⁰

⁴⁹ Hubble Heritage Team, *Star Cluster NGC 602 in the Small Magellanic Cloud*, 2004, composite image, hubblesite.org, accessed May 10, 2020, <https://hubblesite.org/contents/media/images/2007/04/2042-Image.html?news=true>

⁵⁰ Albert Bierstadt, *A Storm in the Rocky Mountains, Mt. Rosalie*, 1866, oil on canvas, [wikiwand.com](https://www.wikiwand.com), accessed May 10, 2020, https://www.wikiwand.com/en/A_Storm_in_the_Rocky_Mountains,_Mt._Rosalie

Kessler's argument made me think about the visual associations between the two types of imaging. The Romantic landscapes mentioned in this exegesis are pictorial and narrative; visual elements are positioned in a scene in relation to the horizon line which gives a clear idea of the pictorial space. While they represent images of fearsome natural events or scenery of overwhelming scale, attempting to induce feelings associated with the sublime experience, the landscapes are something the senses can relate to and instantly understand. The picture frame clearly defines them as events taking place in another time and space, therefore placing the viewer in a position of safety, evocative of Burke's concept of the sublime.

In contrast, contemporary cosmic images like the ones produced by NASA or David Malin are abstract interpretations of digital data, showing unbound, formless phenomenological events. They exist at the same time and in the same infinite cosmic space as the viewer, cannot be seen with the naked eye or directly experienced, but can be accessed through the mental processes of reasoning and imagination, as described by Kant.

The faculty of imagination may also assist in placing the viewer in the scene, as part of the image, an idea which reminded me of the way American artist Jackson Pollock (1912 - 1956) considered himself as being part of his paintings.⁵¹ Pollock approached notions such as the artist's work space, and the reimagining of picture space, through his engagement with celestial subjects, connections that will be discussed in my next section of the exegesis.⁵²

⁵¹ Allan Kaprow, "The Legacy of Jackson Pollock", in *Reading Abstract Expressionism*, ed. Ellen G. Landau (New Haven: Yale University Press, 2005), 183.

⁵² Kirsten A. Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings", *American Art* 16, no. 1 (Spring, 2002): 82.

Chapter 2: Painting and The Cosmic Sublime

2.1 Jackson Pollock

Over the years, I have learned from the experience of many visionary artists, one of them being American painter Jackson Pollock, who broke the rules of creating conventional paintings that mimicked the world and, in the process, transformed the way art was made and perceived. He radically changed the relationship between artist and work space, as well as the way notions of space were addressed in a painting.⁵³ Pollock referenced the cosmos in his paintings *Constellation* (1946), *Galaxy* (1947), *Reflection of the Big Dipper* (1947), *Shooting Star* (1947), and *Comet* (1947), (fig. 15 to fig. 19). These works represent a defining time in Pollock's career, when his painting process transitioned from the thick, painterly strokes evident in *Constellation* to the dynamic dripping characteristic of his later work.⁵⁴ American artist and Professor Kirsten A. Hoving states in her 2002 article entitled *Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings*, that "Contemplating the unreachable galaxies of outer space offered Pollock an opportunity to reconsider his own conceptions of artistic space".⁵⁵

Around the time when Pollock made these works, American print media such as *Newsweek*, *Time* and *Life* covered a number of celestial events which were taking place in outer space. For example, in "In October, 1946, the Giacobini-Zinner comet" adorned the night sky with "a gaudy shower of meteors" and comet Wirtanen appeared in June 1947.⁵⁶ Pictures of these events were also

⁵³ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 85 - 86.

⁵⁴ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 84.

⁵⁵ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 82.

⁵⁶ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 88.

published, and "it would have been nearly impossible for Pollock not to have been aware of outer space as a subject of discussion", inspiring him to "think big and paint fast".⁵⁷ Hoving observes in her article:

From articles about cosmic ray research, rockets, travel to the moon, space exploration, and celestial findings, the sky was a hot topic, and the sense that our relationship to space was changing pervaded the news.⁵⁸

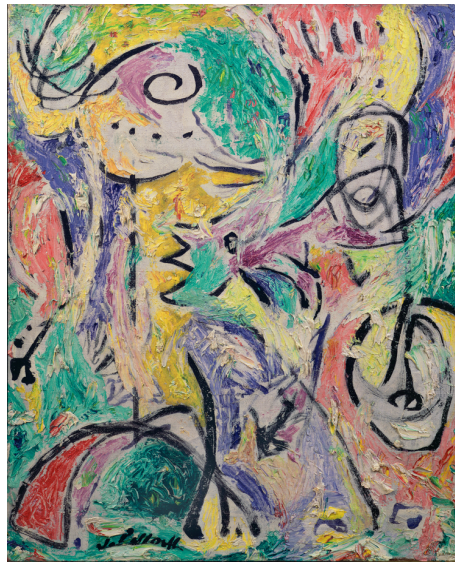


Figure 15. Jackson Pollock, *Constellation*, 1946, oil on canvas, 45.7 x 54.6cm, private collection, NY, credit: The Phillips Collection website.⁵⁹

Professor Hoving also remarks in her essay that Pollock did not intentionally initiate these paintings as representations of cosmic subjects, or as indeed representations of anything: "Pollock did not work with preconceived ideas. Instead, he tried to empty himself of volition, to paint intuitively, relating motion to motion, mark to mark."⁶⁰ For his paintings, Pollock chose titles "that resonated with the experience of painting and with the associations that he wished to imply".⁶¹

⁵⁷ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 88.

⁵⁸ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 88.

⁵⁹ Jackson Pollock, *Constellation*, 1946, oil on canvas, The Phillips Collection, accessed March 15, 2020, www.phillipscollection.org/multimedia/2018-02-03-klee-audio-tour-1

⁶⁰ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 84.

⁶¹ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 85.

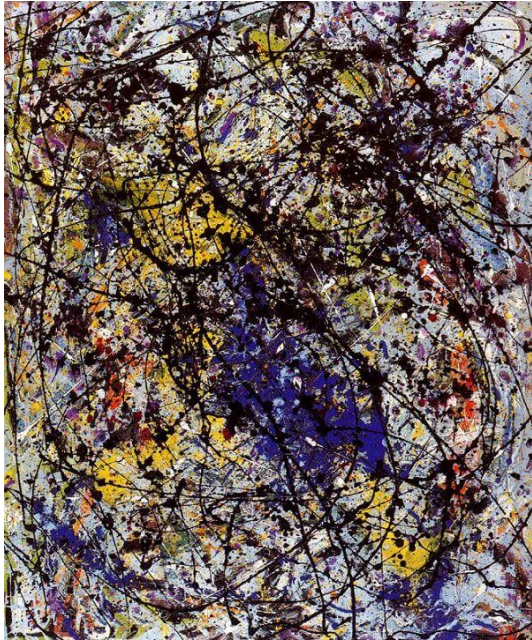


Figure 16. Jackson Pollock, *Reflection of the Big Dipper*, 1947, oil on canvas, 91.5 x 111 cm, Stedelijk Museum, Amsterdam, Netherlands, credit: jackson-pollock.org website.⁶²

Figure 17. Jackson Pollock, *Galaxy*, 1947, oil and aluminium paint on canvas, 86.36 x 110.49cm, Joslyn Art Museum, Omaha, NE, US, credit: jackson-pollock.org website.⁶³

Hoving explains that Pollock's paintings reveal the artist's creative interpretation of space generated by the act of taking the canvas down from the easel and placing it horizontally on the floor, and replacing academic conventions of representation like "chiaroscuro and linear perspective" with unconventional drip and splatter painting movements. The artist himself explained his painting actions: "On the floor, I am more at ease. I feel nearer, more a part of the painting, since this way I can walk around it, work from the four sides and literally be in the painting."⁶⁴ Pollock also re-defined the relationship between the artist's work space and the space conveyed in the artwork. When Pollock was painting a canvas, his body would move up and down, bending, stretching and reaching out on top of and around the painting instead of standing still and vertical in front of the canvas. This process created a picture space with no horizon line, and by using paint poured in dynamic movements instead of

⁶² Jackson Pollock, *Reflection of the Big Dipper*, 1947, oil on canvas, jackson-pollock.org, accessed March 15, 2020, <https://www.jackson-pollock.org/reflection-of-the-big-dipper.jsp>

⁶³ Jackson Pollock, *Galaxy*, 1947, oil and aluminium paint on canvas, jackson-pollock.org, accessed March 15, 2020, <https://www.jackson-pollock.org/galaxy.jsp>

⁶⁴ Leonard Emmerling, *Pollock* (Koln: Taschen, 2003), 65.

brushing it neatly on the vertical canvas, "Pollock proposed a new conception of space", according to Hoving, "of looking up, rather than out, to a night sky without vanishing points or human referents".⁶⁵ In the same text, Hoving cites Pollock's contemporary, American author and critic Parker Tyler (1904 - 1974) referring to Pollock's cosmic paintings as "not illustrations, but that they were, nevertheless, a tangible manifestation of the intangible universe, or, as he expressed it, 'being in non-being'."⁶⁶ Jackson Pollock's wife, the artist Lee Krasner (1908 - 1984), is also quoted as referring to her husband's painting as "unframed space", the artist's "desire to give visual form to unbounded space".⁶⁷



Figure 18. Jackson Pollock, *Shooting Star*, 1947, oil on canvas, 61 x 99 cm, National Museum of Fine Arts, Buenos Aires, credit: Museo Nacional de Bellas Artes website.⁶⁸

Figure 19. Jackson Pollock, *Comet*, 1947, oil on canvas, 45.5 x 94.3 cm, Wilhelm-Hack-Museum, Ludwigshafen am Rhein, Germany, credit: Leonhard Emmerling, *Pollock*.⁶⁹

⁶⁵ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 86 - 87.

⁶⁶ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 89.

⁶⁷ Hoving, "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings": 89.

⁶⁸ Jackson Pollock, *Shooting Star*, 1947, oil on canvas, Museo Nacional de Bellas Artes, Buenos Aires, accessed March 15, 2020, <https://www.bellasartes.gob.ar/en/collection/work/7983/>

⁶⁹ Jackson Pollock, *Comet*, 1947, oil on canvas, in Leonhard Emmerling, *Pollock* (Köln: TASCHEN, 2003), 67.

The abstract expression of ideas in Pollock's paintings, as well as his studio work methods permeate my practice on many levels. I use my work space in a similar manner: I work mostly with canvases placed horizontally on the floor, pouring and many times applying paint without the use of brushes. I work intuitively, becoming part of my painting through movement and interactions with its surface. Pollock's paintings with celestial names engaged my imagination in a similar way that David Malin's photographs of space did, and assisted me in understanding the way I relate to the space in my paintings.

2.2 Yves Klein

While Pollock has affected the manner in which I paint, French artist Yves Klein (1928 - 1962) has informed my unconventional methods and materials used in creating images. Klein, “the most revolutionary artist since Duchamp”, according to German writer Klaus Ottmann (born 1954), made work connected with astronomy, alchemy and the concept of the sublime.⁷⁰ Klein's short and prolific career started in 1955 as a painter, but until his death in 1962 his practice expanded to include other disciplines like sculpture, photography, installation art, performance art, and theoretical writing.⁷¹ His career developed in the era of 1950s space exploration, when USA and USSR raced to the moon. In 1957, the Russians launched the first satellite (and the first dog) into space. In 1959, the Americans took the first photograph of Earth from space, and the Russians photographed the Moon, all extraordinary events at that time.⁷²

From the age of 19, Klein was interested in the writings of theosophist and Rosicrucian Max Heindel (1865 - 1919), especially his treatise *The Rosicrucian*

⁷⁰ Klaus Ottmann and Yves Klein, *Overcoming the Problematics of Art: The Writings of Yves Klein*, trans. Klaus Ottmann (Paris: Spring Publications, Inc. and Yves Klein, ADAGP, 2016), 9, Apple e-book.

⁷¹ "Yves Klein Biography", yvesklein.com (website), accessed March 29, 2019, <http://www.yvesklein.com/en/biographie/>

⁷² "Timeline of space exploration", Australian Geographic (website), accessed July 8, 2020, <https://www.australiangeographic.com.au/topics/science-environment/2012/08/timeline-of-space-exploration/>

Cosmo-Conception (1909), which in the opinion of American Professor Pepe Karmel (born 1955) had a considerable influence on Klein's aesthetics. Karmel believes that the three main colours Klein chose to work with, ultramarine blue, rose-red and gold, were representative of Heindel's esoteric influences.⁷³ Klein created his own paint, the *International Klein Blue*, which "symbolised the potential of the human psyche and the universal energies of the cosmos".⁷⁴ He made paintings with gold leaf, the alchemists' ultimate substance, and his 1960s *Cosmogonies* (fig. 20, fig. 21) are representative of his engagement with the natural elements of earth, water, and wind. Klein took his canvases on river banks, sprinkled pigment onto grasses and reeds to transform them into ad-hoc brushes, and used the movement of wind and rain to make marks on canvases, to capture the imprints of "atmospheric occurrence".⁷⁵ Klein explained in his lectures how he used the element of fire in his 1961 fire paintings, "licking the surface of a painting" with the scorching emissions of a flame thrower and recording the fierce marks of flames on the surface of his works (fig. 22).⁷⁶



Figure 20. Yves Klein, *Untitled Cosmogony (COS 43)*, 1960, dry pigment and synthetic resin on paper mounted on panel, 42 1/2 x 29 1/2 inches, credit: yvesklein.com website.⁷⁷

⁷³ Pepe Karmel, "Yves Klein: Art and Alchemy", *Art in America Magazine* (website), April 26, 2010, accessed March 28, 2019, <https://www.artinamericamagazine.com/news-features/magazines/yves-klein/>

⁷⁴ Urszula Szulakowska, *Alchemy in Contemporary Art* (New York: Ashgate Publishing, 2011), 54 - 55.

⁷⁵ Ottmann and Klein, *Overcoming the Problematics of Art: The Writings of Yves Klein*, 178.

⁷⁶ Ottmann and Klein, *Overcoming the Problematics of Art: The Writings of Yves Klein*, 184.

⁷⁷ Yves Klein, *Untitled Cosmogony*, 1960, dry pigment and synthetic resin on paper, yvesklein.com, accessed June 7, 2019, <http://www.yvesklein.com/en/oeuvres/view/86/cosmogonies/741/untitled-cosmogony/?of=12>



Figure 21. Yves Klein, *Mouth of the Loup River (COS 4)*, 23 March 1960, dry pigment and synthetic resin on paper mounted canvas, 25 x 19 1/2 inches, credit: yvesklein.com website.⁷⁸

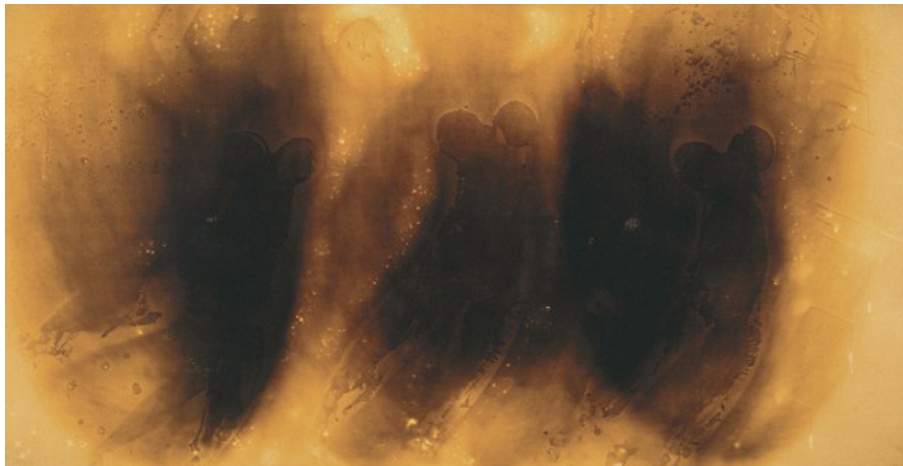


Figure 22. Yves Klein, *Untitled Fire Painting (F 81)*, cc 1961, burnt paper mounted on panel, 98 1/2 x 51 1/2 inches, credit: yvesklein.com website.⁷⁹

In 1961, possibly prompted by the spatial ventures of Russia and America, Klein connected with planets, the moon and the cosmos through his *Planetary Reliefs* (1961), (fig. 23, fig. 24), a collection of works with textured surfaces rich in pigment, resembling the topography of the Earth and lunar terrains seen from space.⁸⁰

⁷⁸ Yves Klein, *Mouth of the Loup River*, 1960, dry pigment and synthetic resin on paper, yvesklein.com, accessed June 7, 2019, <http://www.yvesklein.com/en/oeuvres/view/86/cosmogonies/610/embouchure-du-loup-mouth-of-the-loup-river/?of=3>

⁷⁹ Yves Klein, *Untitled Fire Painting (F 81)*, cc 1961, burned paper on panel, yvesklein.com, accessed June 7, 2019, <http://www.yvesklein.com/en/oeuvres/view/10/fire-paintings/1053/untitled-fire-painting/?of=12>

⁸⁰ Yves Klein, "Planetary Reliefs", yvesklein.com (website), accessed June 7, 2019, <http://www.yvesklein.com/en/oeuvres/serie/14/planetary-reliefs/?of=10>

In his 1961 *New York Chelsea Hotel Manifesto*, Klein talked about the human space exploration, just a few years before spaceflight *Apollo 11*, the first crewed moon landing of 1969.⁸¹

Neither missiles nor rockets nor sputniks will render man the 'conquistador' of space. These means are only dream world of today's scientists who still live in the romantic and sentimental spirit of the 19th century. Man will only arrive at inhabiting space through the terrifying though pacifying force of sensibility.⁸²

Yves Klein's *Planetary Reliefs* are representative of his reflections on cosmological spatial awareness. He created a new cognitive vocabulary, "a new method of perception of cosmic energies", as stated by the art critic Pierre Restany (1930 - 2003) in his 1981 article *Who was Yves Klein*.⁸³

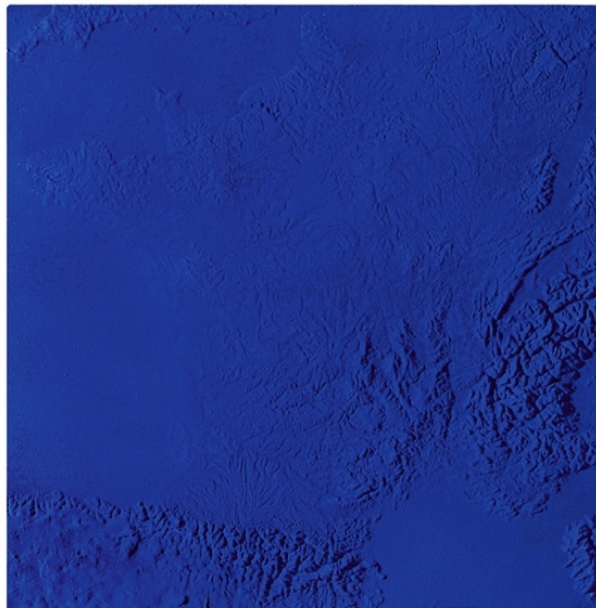


Figure 23. Yves Klein, *Blue Planetary Relief (RP 18)*, 1961, dry pigment and synthetic resin on plaster, 23 x 23 inches, credit: yvesklein.com website.⁸⁴

⁸¹ "Apollo 11", NASA (website), accessed July 22, 2020,

https://www.nasa.gov/mission_pages/apollo/apollo11.html

⁸² Ottmann and Klein, *Overcoming the Problematics of Art: The Writings of Yves Klein*, 187.

⁸³ Pierre Restany, "Who was Yves Klein?", *yvesklein.com*, 1981, accessed June 8, 2019,

<http://www.yvesklein.com/en/textes-choisis/view/7/who-was-yves-klein/>

⁸⁴ Yves Klein, *Blue Planetary Relief (RP 18)*, 1961, dry pigment and synthetic resin on plaster, *yvesklein.com*, accessed June 7, 2019,

<http://www.yvesklein.com/en/oeuvres/view/14/planetary-reliefs/1116/blue-planetary-relief/?of=9>

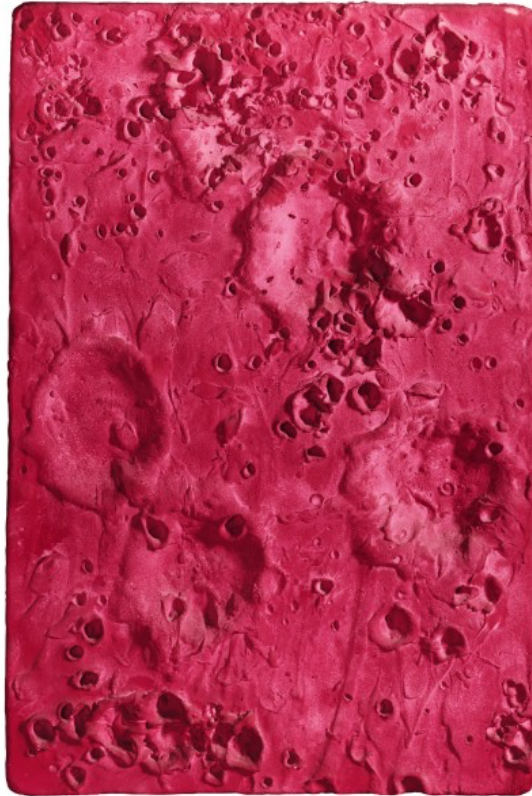


Figure 24. Yves Klein, *Pink Planetary Relief "Lune I"* (RP 22), 1961, dry pigment and synthetic resin on plaster, 26 x 37 inches, credit: yvesklein.com website.⁸⁵

Yves Klein's approach to art-making has been a continuous source of inspiration for my practice. There are similarities between our work processes that suggest alchemical transformations, for example the use of materials like gold leaf and gold paint, pigments and textured surfaces, to create images indicating cosmological subjects. For a number of my paintings, I decided to use industrial metallic powders to experiment with contemporary materials instead of traditional gold leaf, and following Klein's flame throwing example, I devised my own version of fire painting with flame torches on copper sheets (fig. 25, fig. 26). After creating shapes and distinctive colours with the torch, I continued the painting process by inducing chemical reactions with various substances (acids, salts, alcohols), and acrylics applied in many layers, over a few weeks. The resulting paintings display the history of material interactions and accumulated

⁸⁵ Yves Klein, *Pink Planetary Relief "Lune I"* (RP 22), 1961, dry pigment and synthetic resin on plaster, yvesklein.com, accessed June 7, 2019, <http://www.yvesklein.com/en/oeuvres/view/135/planetary-reliefs/794/pink-planetary-relief-lune-i-moon-i/?of=15>

transformation. The titles of the paintings indicate cosmic formations: *DM 1_1986* was named after the largest galaxy recorded so far (discovered by David Malin in 1986), and *Azophi_964* refers to the Persian astronomer Abd al-Rahman al-Sufi, or Azophi (903 - 986), who in 964 made the first record of Andromeda Galaxy and LMC (Large Magellanic Cloud), the first galaxies other than Milky Way to be noted.



Figure 25. Maria Constantinescu, *DM1_1986*, 2019, Acrylic on flame-fired copper sheet, 45 x 90 cm.

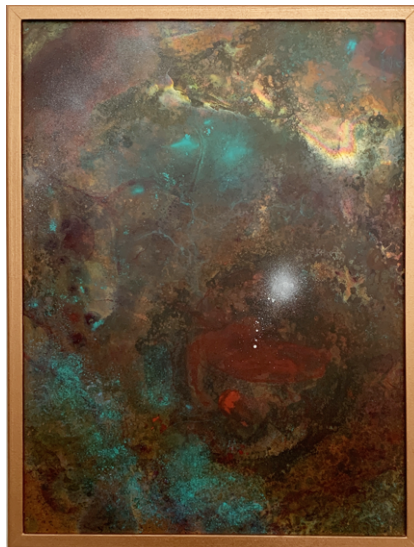


Figure 26. Maria Constantinescu, *Azophi_964*, 2019, Acrylic on flame-fired copper sheet, 45 x 90 cm.

2.3 Alchemy and Painting

The ancient practice of alchemy associated with Yves Klein's work is connected with experimental and innovative processes. American Professor of Humanities Lawrence M. Principe (born 1962) describes alchemy as “a practical science” in his 2014 essay with the same title, and explains the concept of “transmutation” (to transform common base metals into more “noble” substances like gold or silver) as one of the main principles of alchemy.⁸⁶ Similar to alchemists, artists transform and elevate common materials such as paint and canvas into aesthetic, valuable works of art through creative and laborious processes. American art historian James Elkins (born 1955) associates the practice of artists with the alchemical aspects of innovative change, research and experimentation, in his 2003 article *Four Ways of Measuring the Distance Between Alchemy and Contemporary Art*:

Like painters, (alchemists) spent their lives peering into their vessels, looking for colours, for changes of nature, for the mixtures of the elements, for fixity and liquidity and the propensity to stain or evaporate or sublimate: and that is exactly what painters do.⁸⁷

Alchemical references to metals and investigation determined the selection of some materials for this project. For example, in my paintings *Accretion*, *Advent*, *Transmutation* and *Spectrum* (fig. 27 to fig. 30), the conceptual metaphor of alchemical transmutation is made visible through the introduction and use of metallic paints and powders, and experimental mixing with various chemicals such as alkaline and acidic solutions. Time, emotion and imagination are the unseen components always present in my work, fundamental in making visible the transformation of various materials into artworks.

⁸⁶ Lawrence M. Principe, “A Practical Science”, in *Art and Alchemy: The Mystery of Transformation*, Museum Kunstpalast (Dusseldorf: Museum Kunstpalast and Hirmer Publishers, 2014), 20 - 32.

⁸⁷ James Elkins, “Four Ways of Measuring the Distance Between Alchemy and Contemporary Art”, HYLE International Journal for Philosophy of Chemistry (website), accessed June 7, 2019, <http://www.hyle.org/journal/issues/9-1/index.html>.



Figure 27. Maria Constantinescu, *Accretion*, 2019, acrylic on canvas, 73 x 93 cm.

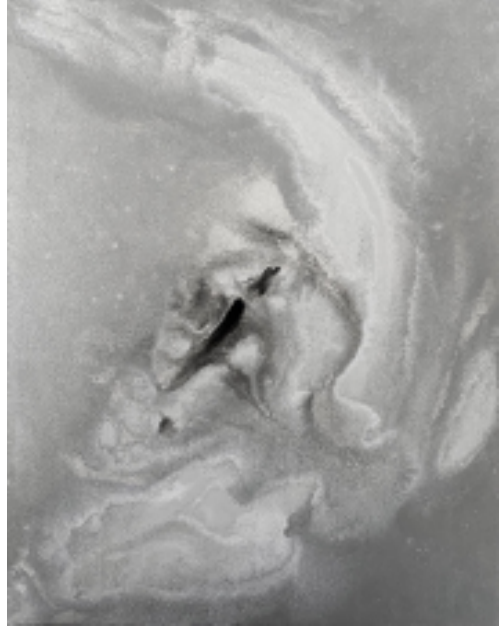


Figure 28. Maria Constantinescu, *Advent*, 2019, acrylic on canvas, 73 x 93 cm.



Figure 29. Maria Constantinescu, *Transmutation*, 2019, acrylic on canvas, 76 x 102 cm.



Figure 30. Maria Constantinescu, *Spectrum*, 2019, acrylic on canvas, 73 x 93 cm.

The concept of presenting the unrepresentable is manifested in some of my paintings directly inspired by the imagery collected from space with telescopes and other space technology, bringing to attention parts of the universe one can never see with the naked eye. The paintings *Flux*, *Luna*, *Halo*, *Dark Nimbus* and *Close-Up* (fig. 31 to fig. 35) are my imaginative expressive interpretation of the feelings I experienced when viewing the memorable astrophotography of David Malin and other cosmic images published online and in print by space stations from around the world, for example the Hubble Space Telescope images.⁸⁸



Figure 31. Maria Constantinescu, *Flux*, 2019, acrylic on canvas, 73 x 93 cm.

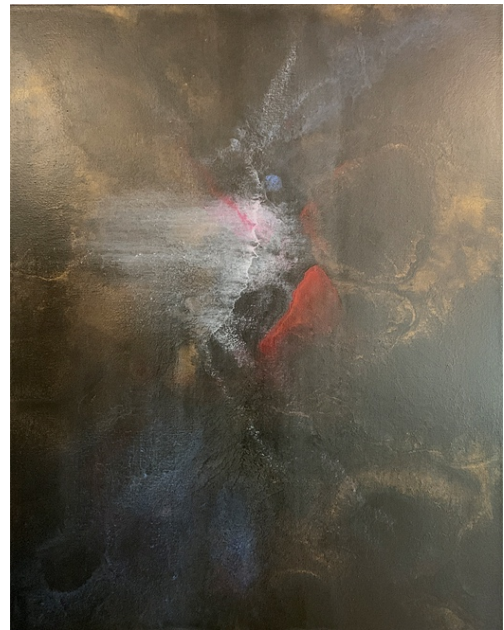


Figure 32. Maria Constantinescu, *Luna*, 2020, acrylic on canvas, 73 x 93 cm.

Time is made visible in my paintings through work processes. Each of my paintings is an accumulation of layers, which requires weeks or months to be completed. Colour washes and brushstrokes, paint pouring, spattering, spraying and airbrushing are applied with energetic gestures, left to dry, then the process is repeated. Like Pollock, I move in the space around and over the paintings, in circular motion, similar to a cosmic object orbiting through space.

⁸⁸ "Hubble Space Telescope Images", NASA (website), August 6, 2020, accessed August 30, 2020, https://www.nasa.gov/mission_pages/hubble/multimedia/index.html

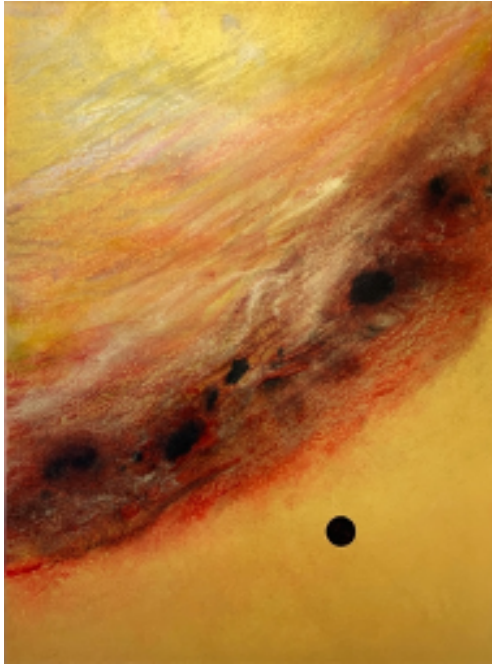


Figure 33. Maria Constantinescu, *Halo*, 2019, acrylic on canvas, 110 x 145 cm.



Figure 34. Maria Constantinescu, *Dark Nimbus*, 2019, acrylic on canvas, 110 x 145 cm.



Figure 35. Maria Constantinescu, *Close-Up*, 2020, acrylic on canvas, 76 x 76 cm.

Another aspect of my practice, creating audio-visual works (video) with the assistance of digital technology, required a quite different approach to art-making. To outline this process, in my next chapter I will explore a number of perspectives and methodologies employed by other artists who also include technological processes in their practice.

Chapter 3: Contemporary Practice and The Cosmic Sublime

3.1 Katie Paterson

One of the contemporary artists who engages with the concept of the cosmic sublime in her work is Katie Paterson (born 1981), a multidisciplinary Scottish artist who investigates the relationship between humans, their natural environment, geological time and cosmological events beyond Earth's planetary boundaries. In many of her projects, time is represented in a cosmic context linked to the speed of light and vast intergalactic spaces, calculated in light years and millennia rather than quantified with terrestrial time-measuring instruments and methods. This mode of approaching the concept of time as an evolutionary dimension of the universe, colossal, terrifying in its immensity, and largely incomprehensible is a sublime experience in itself as described by Immanuel Kant.⁸⁹ The act of contemplating the vastness and eternity of cosmos and humanity's struggle to grasp the meaning of its temporal and spatial expanse becomes overwhelming and unsettling, but at the same time challenging and exciting.⁹⁰

Katie Paterson's 2009 work called *Ancient Darkness TV* (fig. 36) is an example of cosmic sublime made visible in a surprising and thought-provoking manner. For this project, Paterson worked with scientists from Hawaii employing the Mauna Kea telescope to record images of darkness from deep space 13.2 billion light years away from planet Earth, which according to the scientists is the most distant point that can be observed in the universe.⁹¹ These images show the universe just after the Big Bang, when the first stars and other

⁸⁹ Kant, "Critique of the Power of Judgment", 131 - 140.

⁹⁰ Amelia Groom, "We're five hundred years before the man we just robbed was born", in *Time: Documents of Contemporary Art*, ed. Amelia Groom (London: Whitechapel Gallery and The MIT Press, 2013), 16.

⁹¹ "Ancient darkness TV", katiepaterson.org (website), accessed May 8, 2020, <http://katiepaterson.org/portfolio/ancient-darkness-tv/>

celestial bodies, as well as light itself started to emerge.⁹² One minute of the recorded “ancient darkness” was transmitted on November 22, 2009, 11:59 pm, on public-access television station MNN in New York.⁹³ In 2010 Paterson continued the theme by starting a “life-long project” called *History of Darkness* (fig. 37), an ongoing archive of discrete photographs showing darkness captured from a variety of locations across the universe (fig. 38). The images are photos of dark space from many times and places, covering billions of years of cosmic history. They are recorded on 35 mm slides, which are subsequently catalogued with text indicating a number (from 1 to infinity) and their distance from Earth specified in light years (fig. 39, fig. 40). There are thousands of images of darkness in this collection already. Paterson collaborates with a number of institutions and experts around the world to continue this ongoing project, adding more images every year.⁹⁴



Figure 36. Katie Paterson, *Ancient darkness TV*, 2009, video recording of deep space 13.2 billion light years away from planet Earth, duration 1 minute, broadcasted: 11.59pm, 22 November 2009, on Manhattan News Network, New York, credit: katiepaterson.org website.⁹⁵

⁹² "The Farthest Visible Reaches of Space", [nasa.gov](https://imagine.gsfc.nasa.gov/features/cosmic/farthest_info.html) (website), accessed May 9, 2020, https://imagine.gsfc.nasa.gov/features/cosmic/farthest_info.html

⁹³ Jordan Keenan, "Katie Paterson Brings You the Universe", *Vice* (website), May 21, 2012, accessed May 2, 2020, https://www.vice.com/en_au/article/8gvdn3/katie-paterson-brings-you-the-universe-slice-of-sneaker

⁹⁴ Amelia Groom, "We're five hundred years before the man we just robbed was born", 4, 16.

⁹⁵ Katie Paterson, *Ancient darkness TV*, 2009, video recording of deep space, katiepaterson.org, accessed May 8, 2020, <http://katiepaterson.org/portfolio/ancient-darkness-tv/>



Figure 37. Katie Paterson, *History of Darkness*, photographs and slides of deep space, “Continuum” exhibition, James Cohan Gallery, New York, 2011, credit: katiepaterson.org website.⁹⁶



Figure 38. Katie Paterson, *History of Darkness*, *Photograph 7/∞*, Distance from Earth: 3, 261,566 ly, “Continuum” exhibition, James Cohan Gallery, New York, 2011, credit: katiepaterson.org website.⁹⁷

⁹⁶ Katie Paterson, *History of Darkness*, 2011, photographs and slides, katiepaterson.org, accessed May 8, 2020, <http://katiepaterson.org/portfolio/history-of-darkness/>

⁹⁷ Katie Paterson, *History of Darkness*, *Photograph 7/∞*, 2011, black and white photograph, katiepaterson.org, accessed May 8, 2020, <http://katiepaterson.org/portfolio/history-of-darkness/>

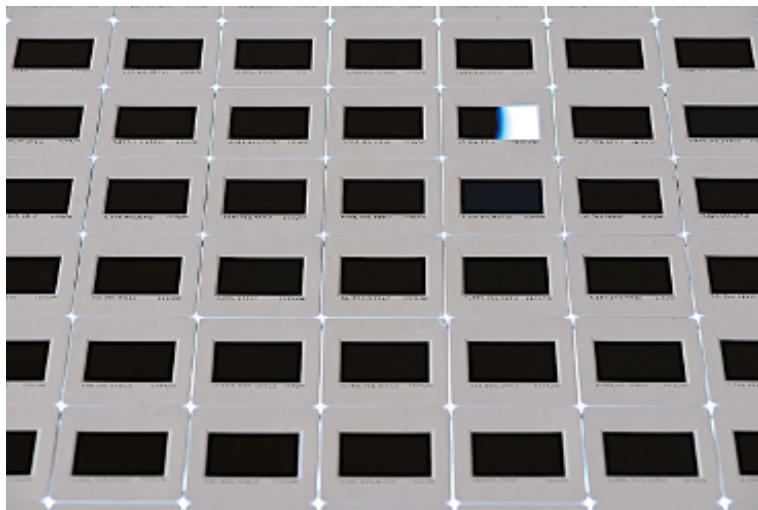
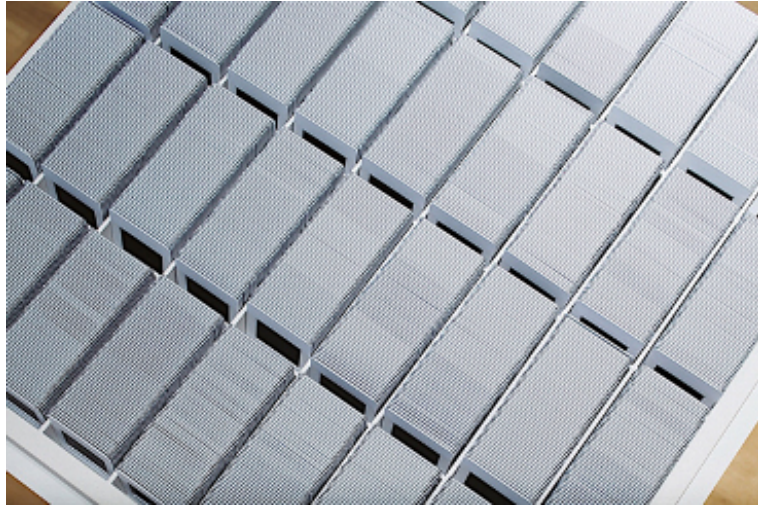


Figure 39 & 40. Katie Paterson, *History of Darkness*, close-ups of the 35 mm slides, “Continuum” exhibition, James Cohan Gallery, New York, 2011, credit: katiepaterson.org.⁹⁸

With the two projects, *Ancient Darkness TV* and *History of Darkness*, Katie Paterson engages with the complexities of superimposed temporalities and the notion of time astronomically measured at the speed of light. Human vision is by its nature limited to always see the past, as there is inevitably a certain duration from a visible event taking place and its perception by the human eye, when the light of that event travelling at 300,000 km/s reaches the retina. When looking at the night sky in our visual present time, one sees incredibly old celestial bodies,

⁹⁸ Katie Paterson, *History of Darkness*, 2011, 35 mm slides, katiepaterson.org, accessed May 8, 2020, <http://katiepaterson.org/portfolio/history-of-darkness/>

their light reaching the Earth after travelling through space for millions of years. Observing the darkness presented by Paterson's *Ancient Darkness TV*, and also many of the *History of Darkness* slides, one sees a cosmic time and space when most of the stars were still not formed.⁹⁹ Referring to this subject in an interview, Katie Paterson states: "I find it astonishing that through telescopes, people can look directly into the universe to a time where the Earth didn't even exist."¹⁰⁰ The use of familiar, rather outdated technology – the TV station broadcasting in *Ancient Darkness TV*, film slides and black and white prints in *History of Darkness* – to transmit interstellar images of space, further emphasises the Kantian sublime concept of the cosmic immensity through the juxtaposition of different cosmic and terrestrial timelines.

3.2 Semiconductor

The concept of time is also present in digital video art. As a generic term, video is used to define the production and display of moving images (with or without sound), and it refers to the original analog video tape, as well as to footage produced and displayed with the help of computer applications and hardware. Video art (also called moving image art) can be presented as a single-channel, stand-alone work, or as part of a multi-channel installation.¹⁰¹ The UK artist duo Ruth Jarman (born 1973) and Joe Gerhardt (born 1972) have been collaborating for over 20 years as Semiconductor to make installations, sculptures and moving image projects investigating the ways in which science and technology affect how people experience the world. The two artists engage in extensive research for their projects, with scientific institutions like NASA, CERN, and the Smithsonian National Museum of Natural History. For each project, they develop special techniques, customised instruments and tailor-made processes to achieve, and then creatively

⁹⁹ Amelia Groom, "We're five hundred years before the man we just robbed was born", 16.

¹⁰⁰ Cecil Moss, "Interview with Katie Paterson", Rhizome (website), June 16, 2010, accessed May 5, 2020, <https://rhizome.org/editorial/2010/jun/16/interview-with-katie-paterson/>

¹⁰¹ Yvonne Spielmann, "Video: From Technology to Medium", *Art Journal*, Vol.65, No. 3 (Fall, 2006): 60-63, doi:10.2307/20068481.

communicate, their unique understanding of natural phenomena "framed by the tools and processes of science".¹⁰² From their extensive body of work, I chose to review three projects which were relevant to my research and video work, demonstrating how contemporary art-making integrates 21st-century moving image and sound technologies to create works referencing the cosmic sublime.

Semiconductor's project *Catching the Light* (2014) is a six metres wide video projection (fig. 41), with four-channel sound which is produced and controlled by the luminescence of the video imaging. The sounds of the installation are similar to the ones generated by radio telescopes when information collected from space is interpreted as sound waves. The images were created by collaging raw data "from the Mikulski Archive for Space Telescopes (MAST)".¹⁰³ The two artists prefer to work with unprocessed data collected by telescopes, declaring: "We embrace all these artifacts as a way to remind us of man as an observer of space and to also represent these images in a new way".¹⁰⁴ When projected, the greyscale cosmic images randomly appear and disappear on different areas of various shapes screens. The screens are made of the same composite aluminium material used to manufacture spacecraft, and are positioned at a distance from the walls to look like hovering objects in space. The shapes of the screens indicate techniques of referencing and archiving, used by space observatories to make maps of the universe.¹⁰⁵ All aspects of the work point to elements of the cosmic sublime, such as the immensity of space, the light of innumerable stars, and the vast cosmic darkness, reinterpreted and presented with contemporary technology.

¹⁰² "About Semiconductor", Semiconductor (website), accessed August 8, 2020, <https://semiconductorfilms.com/data/about/>

¹⁰³ "Catching the Light", Semiconductor (website), accessed August 8, 2020, <https://semiconductorfilms.com/art/catchingthelight/>

¹⁰⁴ Becky Chung, "Semiconductor's New Installation Is a Portal into the Cosmos", Vice (website), accessed August 10, 2020, <https://www.vice.com/en/article/3d5a55/semiconductors-new-installation-is-a-portal-into-the-cosmos>

¹⁰⁵ "Catching the Light", <https://semiconductorfilms.com/art/catchingthelight/>

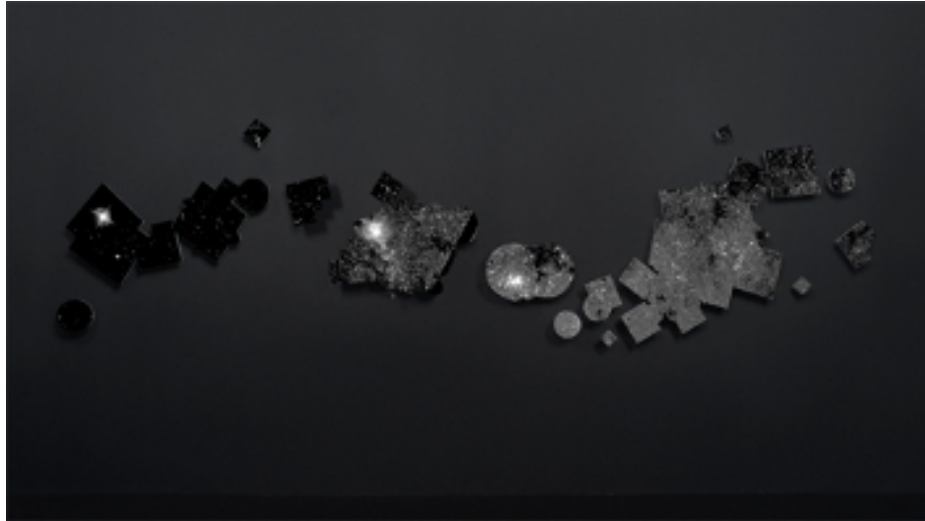


Figure 41. A Semiconductor work by Ruth Jarman and Joe Gerhardt, *Catching the Light*, 2014, multi-channel HD moving image with 6 m wide Alucore screens, video still.¹⁰⁶

Brilliant Noise (2006), (fig. 42) and *Black Rain* (2009), (fig. 43) are two other Semiconductor projects created with images from space. The subjects of these works are the Sun, our own star, and respectively the space around the Sun, filled with moving planets, comets and other faraway cosmic objects of the Milky Way. *Brilliant Noise* looks directly at the Sun, presenting never before seen images of the solar energy bursts and flares, while *Black Rain* data shows the heliosphere with myriad of cosmic objects and particles, and solar energy moving through the darkness of space.¹⁰⁷ Using open access raw digital images collected by satellites and space observatories, Jarman and Gerhardt created time-lapse greyscale videos and sound "by directly translating areas of intensity within the image brightness into layers of audio manipulation and radio frequencies".¹⁰⁸ The images were used as recorded by computers, without refining or removing the static noise and graininess created by solar winds and other energy particles. Both works were presented as single-channel videos or multi-channel, multi-screen installations on large, immersive screens, depending

¹⁰⁶ Semiconductor, *Catching the Light*, 2014, multi-channel video, semiconductorfilms.com, accessed August 8, 2020, <https://semiconductorfilms.com/art/catchingthelight/>

¹⁰⁷ "Heliosphere", NASA (website), accessed August 8, 2020, <https://science.nasa.gov/heliophysics/focus-areas/heliosphere>

¹⁰⁸ "Brilliant Noise", Semiconductor (website), accessed August 9, 2020, <https://semiconductorfilms.com/art/brilliant-noise/>

on the location and gallery space.¹⁰⁹ The two works are compelling reminders that the cosmic sublime is not only far away in the infinity and immensity of the universe, but also all around, much closer than one would realise, as the unseen energy of the Sun and the outer space is made visible through the mediation of video processing technology.

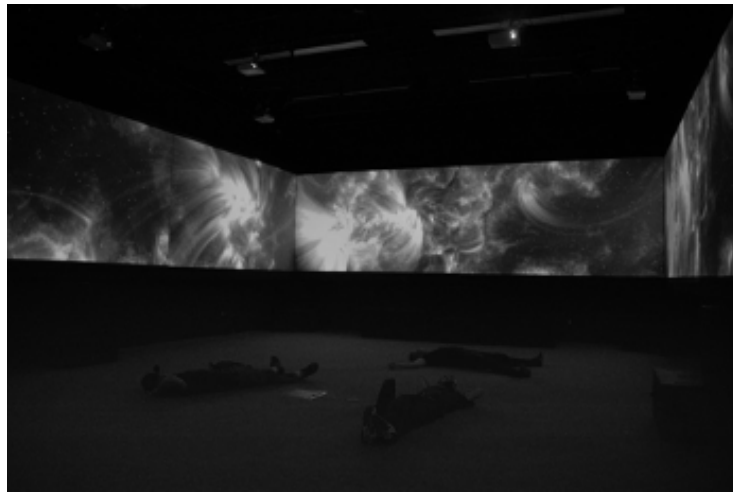


Figure 42. A Semiconductor work by Ruth Jarman and Joe Gerhardt, *Brilliant Noise*, 2006, installation shot, various lengths SD / HD / single channel + multi-channel versions.¹¹⁰

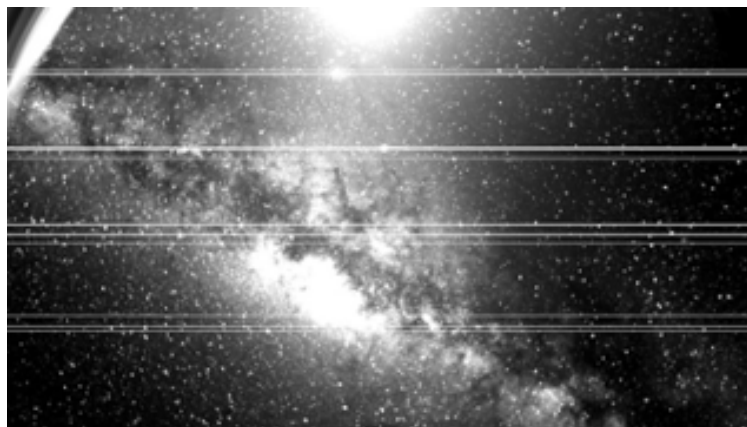


Figure 43. A Semiconductor work by Ruth Jarman and Joe Gerhardt, *Black Rain*, 2009, 03:00 minutes / 17:00 minute loop, single channel + installation, video still.¹¹¹

¹⁰⁹ "Black Rain", Semiconductor (website), accessed August 9, 2020, <https://semiconductorfilms.com/art/black-rain/>

¹¹⁰ Semiconductor, *Brilliant Noise*, 2006, video installation, semiconductorfilms.com, accessed August 8, 2020, <https://semiconductorfilms.com/art/brilliant-noise/>

¹¹¹ Semiconductor, *Black Rain*, 2009, video installation, semiconductorfilms.com, accessed August 8, 2020, <https://semiconductorfilms.com/art/black-rain/>

3.3 Ryoji Ikeda

The efficiency of large-scale video and audio-visual installation art to successfully convey ideas associated with the sublime is further demonstrated in the work of Japanese artist Ryoji Ikeda (born 1966), who explores notions of time, cosmos, science, and mathematics through digital technologies. His art practice investigates mathematical aesthetics through the moving image, as single-channel large scale videos, or multi-channel immersive installations and live performances in which "he elaborately orchestrates sound, visuals, materials, physical phenomena and mathematical notions".¹¹² His 2019 video work *data-verse 1* (fig. 44) is a massive single-channel digital video, with the original size of the screen being 6 metres high x 12 metres wide, and a strobe effect applied over the moving image. It is the first work of his *data-verse* trilogy which he initiated in the year 2000, with *data-verse 3* to be finalized by 2021, described as "an audio-visual symphonic suite" inhabiting the space "between the visible and the invisible".¹¹³ It references the microcosm of the smallest elementary particles and the macrocosm of the whole universe.¹¹⁴

In 2013, Ikeda's audio-visual installation work called *test pattern [n°5]*, (fig. 45) was commissioned by Carriageworks as part of the Vivid Sydney program. Six computers, five DLP projectors and six speakers were used for the installation. The work is described by the artist as "a system that converts any type of data (text, sounds, photos and movies) into barcode patterns and binary patterns of 0s and 1s".¹¹⁵ It occupied 10 metres x 40 metres floor space. Viewers experienced the fully immersive work by moving along images projected on the floor, or from a viewing platform at a distance. The loud sound was activated by the flickering layers of light sliding and pulsing rapidly along the floor-screen.¹¹⁶ Ikeda describes

¹¹² "Biography", ryojiikeda.com (website), accessed August 18, 2020, <http://www.ryojiikeda.com/biography/>

¹¹³ Ryoji Ikeda, "data-verse 1, 11 MAY > 24 NOV 2019, Venice Biennale", vimeo.com (website), accessed August 18, 2020, <https://vimeo.com/336308234>

¹¹⁴ Ryoji Ikeda, "data-verse 1, 11 MAY > 24 NOV 2019, Venice Biennale".

¹¹⁵ Ryoji Ikeda, "test pattern [n°5]", ryojiikeda.com (website), accessed August 18, 2020, [ryojiikeda.com, http://www.ryojiikeda.com/project/testpattern/](http://www.ryojiikeda.com/project/testpattern/)

¹¹⁶ Gillian Serisier, "Ryoji Ikeda's Test Pattern", Australian Design Review (website), accessed August 15, 2020, <https://www.australiandesignreview.com/interiors/ryoji-ikedas-test-pattern/>

his work as “always polarized by concepts of the beautiful and the sublime”. He states: "To me, beauty is crystal, rationality, precision, simplicity, elegance, delicacy. The sublime is infinity, infinitesimal, immensity, indescribable, ineffable. The purest beauty is the world of mathematics."¹¹⁷ Kant's mathematically sublime resonates in Ikeda's work through his data-driven, at times overwhelming, sounds and images of cosmic space and time. He not only makes the invisible of the cosmos visible through the mediation of digital technology, it makes it accessible to all senses.¹¹⁸

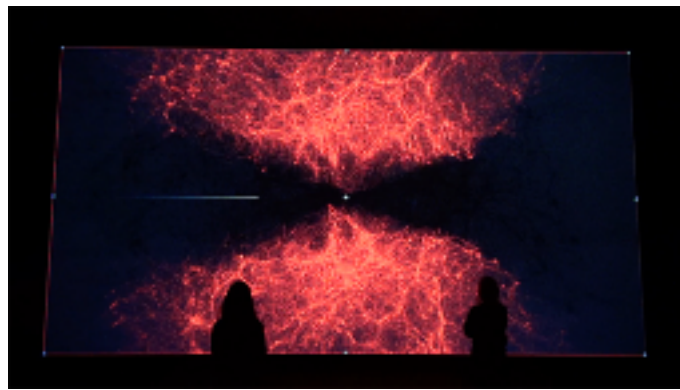


Figure 44. Ryoji Ikeda, *data-verse 1*, 2019, strobe effect on video, 6 x 12 m, video still, Venice Biennale, © Ryoji Ikeda Studio.¹¹⁹



Figure 45. Ryoji Ikeda, *test pattern [n°5]*, 2013, audio-visual Installation, 10 x 40 m, video still, Carriageworks, Sydney, AU, © Ryoji Ikeda Studio.¹²⁰

¹¹⁷ Max Hodges, "Ryoji Ikeda's '+/- [the infinite between 0 and 1]': An Interpretation", Medium (website), accessed July 6, 2020, <https://medium.com/@maxhodges/ryoji-ikedas-the-infinite-between-0-and-1-an-interpretation-ae1c2f804840>

¹¹⁸ Max Hodges, "Ryoji Ikeda's '+/- [the infinite between 0 and 1]': An Interpretation".

¹¹⁹ Ryoji Ikeda, *data-verse 1*, 2019, strobe effect on video, vimeo.com, accessed August 30, 2020, <https://vimeo.com/336308234>

3.4 Digital Video

In the process of investigating digital video as a potential form of creative expression, and making my own video work, I learned that there are a number of similarities, as well as differences between painting and video, when making work referencing the sublime. My video *In Perpetuum* (fig. 46) is a single channel work made with the Adobe programs *After Effects*, *Premiere*, *Audition* and *Media Encoder*, with no footage recorded by camera. Comparable to my paintings, it refers to the cosmic sublime by depicting images that suggest cosmic themes, and evoke the feelings and sensations one might experience when contemplating images of powerful events in outer space, such as the birth and death of galaxies, stars and solar systems, or the infinity of space and time. Creating images with computer software is similar to painting, but using pixels instead of paints: the tools are quite different, but the same decisions have to be made in relation to colours, tonality, shapes, texture, composition, etc. The final video is composed of many layered images, similar to my paintings which are formed with multiple layers of paint.

However, there are important contrasts between painting and video. The concept of time is present in both art-making forms, although in different manifestations than for example in the previously discussed works by Katie Paterson, where time is defined as an intergalactic dimension. In my paintings, time is part of the making process, made visible through the accretion of paint on canvas, while time in the video is primarily perceived through the movement of images. There are also differences between the engagement of the viewer with the two forms of art. Paintings offer an intimate, contemplative experience, where the viewer might choose to spend time observing, assimilating and discovering the meaning of the work. In contrast, video is an instantly engaging, multi-sensorial medium which inundates attention with "the exciting possibilities for the interaction of the senses from the visual to the aural to the tactile" and

¹²⁰ Ryoji Ikeda, *test pattern [n°5]*, 2013, audio-visual installation, vimeo.com, accessed August 30, 2020, <https://vimeo.com/68597939>

"has the power to engulf the viewer entirely."¹²¹ In contrast to the defined dimensions of a painting, video can be expanded into large presentations, therefore meeting Kant's requirement for sublime scale.¹²² Video as an artistic medium not only points to the sublime, but through its impressive proportions and multi-sensorial encounter often attempts to engage the viewer in experiencing the sublime through the medium itself. Large scale video installations like Semiconductor's and Ryoji Ikeda's are perhaps more effective in trying to achieve this undertaking through their immersive qualities and sensory overload.¹²³ Ikeda's installation *data-verse*, for example, has been described as flooding "the audience in a seemingly endless flow of overwhelming data" and exploring "the infinite reaches of the universe", characterizations reminiscent of the sublime boundlessness of the cosmos.¹²⁴ Creating video works for my project has been a process of reimagining painting within a contemporary artistic environment. The addition of video to my art practice expanded my visual vocabulary and further developed my capabilities of making visible the unseen aspects of the cosmic sublime.

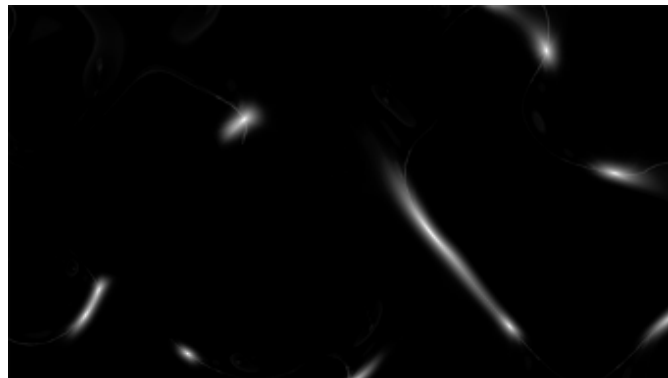


Figure 46. Maria Constantinescu, *In Perpetuum*, 2020, digital video still, Adobe programs.

¹²¹ Rina Arya, "Bill Viola and the Sublime", in Nigel Llewellyn and Christine Riding eds., *The Art of the Sublime*, Tate Research Publication (website), January 2013, accessed November 12, 2020, <https://www.tate.org.uk/art/research-publications/the-sublime/rina-arya-bill-viola-and-the-sublime-r1141441>

¹²² Kant, "Critique of the Power of Judgment", 132 - 134.

¹²³ Rina Arya, "Bill Viola and the Sublime", <https://www.tate.org.uk/art/research-publications/the-sublime/rina-arya-bill-viola-and-the-sublime-r1141441>

¹²⁴ Reese Berman, "Ryoji Ikeda: Artist and Data Scientist", Penn Arts & Sciences (website), accessed September 21, 2020, <https://web.sas.upenn.edu/venicebiennale/ryoji-ikeda/>

Conclusion

My research for this project aimed to investigate historical and contemporary artistic expressions of the cosmic sublime, and methods of depicting the invisible by making it perceivable through the materiality of painting and video artworks. In the **Introduction**, I summarised my research referring to goals to be achieved within the project, and concisely defined the information discussed in each chapter. Theoretical, philosophical and historical references were covered in **Chapter 1**, starting with David Malin's astrophotography and considering other cosmic visual representations such as spectroscopy. I explored the development of the cosmic sublime philosophy since Edmund Burke and Immanuel Kant, with references to Romantic painting. Modern interpretations of the subject by abstract painters Kazimir Malevich and Barnett Newman were examined, as well as commentary by Jean-François Lyotard, Paul Crowther, Eric Kluitenberg and other critics, continuing with an analysis of the 21st-century cosmic sublime in the writing of Elizabeth A. Kessler.

My contemporary art practice is part of a continuum in the history of art-making, and builds upon the lineage of previous generations of artists like Jackson Pollock and Yves Klein, two giants of Western art who informed my artistic development. Links between their work processes and my art practice were discussed in **Chapter 2**, where I also described my painting methods in more detail. In **Chapter 3**, I reviewed the contemporary work of artists creating in the context of 21st-century artistic practice, Katie Paterson, Semiconductor, and Ryoji Ikeda, at the same time assessing the capabilities of digital video to express concepts of the cosmic sublime.

The main lesson I learned in my journey through this project is that the concept of the sublime, after more than 200 years since its Romantic developments, is still a fertile subject of debate for theorists, a topic of constant interest for philosophers, but most of all, an inexhaustible source of inspiration and investigation for artists.

Bibliography

- "About Semiconductor". semiconductorfilms.com (website). Accessed August 8, 2020. <https://semiconductorfilms.com/data/about/>
- "Ancient darkness TV". katiepaterson.org (website). Accessed May 8, 2020. <http://katiepaterson.org/portfolio/ancient-darkness-tv/>
- "Apollo 11". NASA (website). Accessed July 22, 2020. https://www.nasa.gov/mission_pages/apollo/apollo11.html
- Arya, Rina. "Bill Viola and the Sublime". In *The Art of the Sublime*. Editors Nigel Llewellyn and Christine Riding. Tate Research Publication (website). January 2013. Accessed November 12, 2020. <https://www.tate.org.uk/art/research-publications/the-sublime/rina-arya-bill-viola-and-the-sublime-r1141441>
- Berman, Reese. "Ryoji Ikeda: Artist and Data Scientist". Penn Arts & Sciences (website). Accessed September 21, 2020. <https://web.sas.upenn.edu/venicebiennale/ryoji-ikeda/>
- Bierstadt, Albert. *A Storm in the Rocky Mountains, Mt. Rosalie*, 1866. Oil on canvas. wikiwand.com. Accessed May 10, 2020. https://www.wikiwand.com/en/A_Storm_in_the_Rocky_Mountains,_Mt._Rosalie
- "Biography". ryokiikeda.com (website). Accessed August 18, 2020. <http://www.ryojiikeda.com/biography/>
- "Black Rain". Semiconductor (website). Accessed August 9, 2020. <https://semiconductorfilms.com/art/black-rain/>
- Blaszczak-Boxe, Agata. "Facts about Hydrogen". Live Science (website). January 23, 2015. Accessed June 29, 2020. <https://www.livescience.com/28466-hydrogen.html>
- Briggs, David. "Additive Mixing". The Dimensions of Colour (website). July 23, 2014. Accessed March 17, 2019. <http://www.huevaluechroma.com/041.php>
- "Brilliant Noise". Semiconductor (website). Accessed August 9, 2020. <https://semiconductorfilms.com/art/brilliant-noise/>

- "Broken Rainbows". Khan Academy (website). Accessed April 11, 2020.
<https://www.khanacademy.org/science/class-11-chemistry-india/xfbb6cb8fc2bd00c8:in-in-structure-of-atom/xfbb6cb8fc2bd00c8:in-in-bohr-s-model-of-hydrogen-atom/a/absorptionemission-lines>
- Burke, Edmund and James T. Boulton. *A Philosophical Enquiry into the Sublime and Beautiful*. 2nd ed. Routledge Classics. London: Routledge Classics, 2008.
- Calley Galitz, Kathryn. "Romanticism". The Metropolitan Museum of Art (website). October 2004. Accessed March 22, 2020.
http://www.metmuseum.org/toah/hd/roma/hd_roma.htm
- Common, Andrew Ainslie. *Photograph of the Orion Nebula (M42)*, 1883. Black and white photograph. Science Museum Group. Accessed May 15, 2020.
<https://collection.sciencemuseumgroup.org.uk/objects/co486047/photograph-of-the-great-nebula-in-orion-1883-black-and-white-prints-photographs-astrophotographs-star-clusters>
- "Catching the Light". Semiconductor (website). Accessed August 8, 2020.
<https://semiconductorfilms.com/art/catchingthelight/>
- Chung, Becky. "Semiconductor's New Installation Is a Portal into the Cosmos". Vice (website). Accessed August 10, 2020.
<https://www.vice.com/en/article/3d5a55/semiconductors-new-installation-is-a-portal-into-the-cosmos>
- Crawford, Donald W. "Kant". In *The Routledge Companion to Aesthetics*, edited by Berys Gaut and Dominic McIver Lopes, 51 - 64. New York: Routledge, 2005.
- Crowther, Paul. *The Kantian Sublime, From Morality to Art*. Oxford: Clarendon Press, 1989.
- "David Malin Images". davidmalin.com (website). Accessed March 11, 2019.
<https://www.davidmalin.com/>
- Elkins, James. "Four Ways of Measuring the Distance Between Alchemy and Contemporary Art". HYLE International Journal for Philosophy of Chemistry (website). Accessed June 7, 2019.
<http://www.hyle.org/journal/issues/9-1/index.html>
- Emmerling, Leonard. *Pollock*. Koln: Taschen, 2003.

- Freeman, Damien. "Sublime: the pleasure of the overwhelming". NSW Art Gallery (website). Accessed May 11, 2019.
<https://www.artgallery.nsw.gov.au/calendar/sublime/>
- Friedrich, Caspar David. *Man and Woman Contemplating the Moon*, cc 1824. Oil on Canvas. Wikipedia. Accessed March 4, 2020,
https://en.wikipedia.org/wiki/Two_Men_Contemplating_the_Moon#/media/File:Caspar_David_Friedrich__Man_and_Woman_Contemplating_the_Moon_-_WGA08271.jpg
- Galitz, Kathryn Calley. "Romanticism". The Metropolitan Museum of Art (website). October 2004. Accessed March 22, 2020.
http://www.metmuseum.org/toah/hd/roma/hd_roma.htm
- Gill, Kevin M. *Voyager 1's Pale Blue Dot*, 1990. Colour photograph. NASA. Accessed March 10, 2020.
<https://solarsystem.nasa.gov/resources/536/voyager-1s-pale-blue-dot/>
- Groom, Amelia. "We're five hundred years before the man we just robbed was born". In *Time: Documents of Contemporary Art*, edited by Amelia Groom, 12 - 25. London: Whitechapel Gallery and The MIT Press, 2013.
- "Heliosphere". NASA (website). Accessed August 8, 2020.
<https://science.nasa.gov/heliophysics/focus-areas/heliosphere>
- Hester Jeff and Paul Scowen. *The Pillars of Creation in the Eagle Nebula*, 1995. Composite image. hubblesite.org. Accessed May 10, 2020.
<https://hubblesite.org/news/news-releases>
- Hodges, Max. "Ryoji Ikeda's '+/- [the infinite between 0 and 1]': An Interpretation". Medium (website). Accessed July 6, 2020.
<https://medium.com/@maxhodges/ryoji-ikedas-the-infinite-between-0-and-1-an-interpretation-ae1c2f804840>
- Hoving, Kirsten A. "Jackson Pollock's 'Galaxy': Outer Space and Artist's Space in Pollock's Cosmic Paintings." *American Art* 16, no. 1 (Spring, 2002): 82 - 93. <http://www.jstor.org/stable/3109397>
- "How are Spectra Produced? ". CSIRO (website). Accessed June 4, 2020.
<https://www.atnf.csiro.au/outreach/education/senior/astrophysics/spectroscopyhow.html>

- Hubble Heritage Team. *Star Cluster NGC 602 in the Small Magellanic Cloud*, 2004. Composite image. hubblesite.org. Accessed May 10, 2020. <https://hubblesite.org/contents/media/images/2007/04/2042-Image.html?news=true>
- "Hubble Space Telescope Images". NASA (website). August, 2020. Accessed August 30, 2020. https://www.nasa.gov/mission_pages/hubble/multimedia/index.html
- Ikeda, Ryoji. "data-verse 1, 11 MAY > 24 NOV 2019, Venice Biennale". vimeo.com (website). Accessed August 18, 2020. <https://vimeo.com/336308234>
- Ikeda, Ryoji. *data-verse 1*, 2019. Strobe effect on video. vimeo.com. Accessed August 30, 2020. <https://vimeo.com/336308234>
- Ikeda, Ryoji. *test pattern [n°5]*, 2013. Audio-Visual installation. vimeo.com. Accessed August 30, 2020. <https://vimeo.com/68597939>
- Ikeda, Ryoji. "test pattern [n°5]". ryojiikeda.com (website). Accessed August 18, 2020. <http://www.ryojiikeda.com/project/testpattern/>
- Kant, Immanuel. "Critique of the Power of Judgment". In *The Cambridge Edition of the Works of Immanuel Kant*, edited by Paul Guyer and Eric Matthews, 53 - 346. New York: Cambridge University Press, 2002.
- Kaprow, Allan. "The Legacy of Jackson Pollock". In *Reading Abstract Expressionism*, edited by Ellen G. Landau, 181 - 187. New Haven: Yale University Press, 2005.
- Karmel, Pepe. "Yves Klein: Art and Alchemy". *Art in America Magazine* (website). April 26, 2010. Accessed March 28, 2019. <https://www.artinamericamagazine.com/news-features/magazines/yves-klein/>
- Keenan, Jordan. "Katie Paterson Brings You the Universe". *Vice* (website). May 21, 2012. Accessed May 2, 2020. https://www.vice.com/en_au/article/8gvdn3/katie-paterson-brings-you-the-universe-slice-of-sneaker
- Kessler, Elizabeth A. *Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime*. Minneapolis: University of Minnesota Press, 2012.

- Klein, Yves. *Blue Planetary Relief (RP 18)*, 1961. Dry pigment and synthetic resin on Plaster. yvesklein.com. Accessed June 7, 2019. <http://www.yvesklein.com/en/oeuvres/view/14/planetary-reliefs/1116/blue-planetary-relief/?of=9>
- Klein, Yves. *Mouth of the Loup River*, 1960. Dry pigment and synthetic resin on paper. yvesklein.com. Accessed June, 7 2019. <http://www.yvesklein.com/en/oeuvres/view/86/cosmogonies/610/embouchure-du-loup-mouth-of-the-loup-river/?of=3>
- Klein, Yves. *Pink Planetary Relief "Lune I" (RP 22)*, 1961. Dry pigment and synthetic resin on plaster. yvesklein.com. Accessed June 7, 2019. <http://www.yvesklein.com/en/oeuvres/view/135/planetary-reliefs/794/pink-planetary-relief-lune-i-moon-i/?of=15>
- Klein, Yves. "Planetary Reliefs". yvesklein.com (website). Accessed June 7, 2019. <http://www.yvesklein.com/en/oeuvres/serie/14/planetary-reliefs/?of=10>
- Klein, Yves. *Untitled Cosmogony*, 1960. Dry pigment and synthetic resin on paper. yvesklein.com. Accessed June 7, 2019. <http://www.yvesklein.com/en/oeuvres/view/86/cosmogonies/741/untitled-cosmogony/?of=12>
- Klein, Yves. *Untitled Fire Painting (F 81)*, cc 1961. Burned paper on panel. yvesklein.com. Accessed June 7, 2019. <http://www.yvesklein.com/en/oeuvres/view/10/fire-paintings/1053/untitled-fire-painting/?of=12>
- Kluitenberg, Eric. "Transfiguration of the Avant-Garde: The Negative Dialectics of the Net". Monoskop (website). December 2010. Accessed June 23, 2020. https://monoskop.org/Eric_Kluitenberg
- Lyotard, Jean-François. "Presenting the Unpresentable: The Sublime//1982". In *The Sublime*, edited by Simon Morley, 130 - 136. Cambridge: The MIT Press, 2010.
- Lyotard, Jean-François. "The Sublime and the Avant-Garde//1988". In *The Sublime*, edited by Simon Morley, 27 - 41. Cambridge: The MIT Press, 2010.
- Malevich, Kazimir. *Black Square*, 1915. Oil on canvas. Tate UK. Accessed March 24, 2020. <https://www.tate.org.uk/art/research-publications/the-sublime/philip-shaw-kasimir-malevichs-black-square-r1141459>

- Malin, David. *Ancient Light: A Portrait of the Universe*. London: Phaidon Press, 2009.
- Malin, David. *The Horsehead Nebula*, 1978. Black and white photograph. AAO Image Archive. Accessed June 1, 2019.
<https://images.datacentral.org.au/malin/AAO4/46>
- Malin, David. *The Horsehead Nebula*, 2007. Colour photograph. AAO Image Archive. Accessed June 1, 2019.
<https://images.datacentral.org.au/malin/AAO4/46>
- Markuse, Pierre. "The Thing with Colors in Astrophotography". Photographing Space (website). Accessed June 12, 2020.
<https://photographingspace.com/ap-color/>
- Moran, Thomas. *Cliffs of the Upper Colorado River, Wyoming Territory*, 1882. Oil on canvas. Wikimedia. Accessed May 13, 2020.
https://commons.wikimedia.org/wiki/File:Cliffs_of_the_Upper_Colorado_River,_Wyoming_Territory_SAAM-1936.12.4_1.jpg
- Moss, Cecil. "Interview with Katie Paterson". Rhizome (website). June 16, 2010. Accessed May 5, 2020.
<https://rhizome.org/editorial/2010/jun/16/interview-with-katie-paterson/>
- Newman, Barnett. "The Sublime is Now//1948". In *The Sublime*, edited by Simon Morley, 25 - 27. Cambridge: The MIT Press, 2010.
- Newman, Barnett. *Vir Heroicus Sublimis*, 1950-51. Oil on canvas. MoMA. Accessed August 14, 2020.
<https://www.moma.org/collection/works/79250>
- Ottmann, Klaus and Yves Klein. *Overcoming the Problematics of Art: The Writings of Yves Klein*. Translated by Klaus Ottmann. Paris: Spring Publications, Inc. and Yves Klein, ADAGP, 2016. Apple e-book.
- Paterson, Katie. *Ancient darkness TV*, 2009. Video recording of deep space. katiepaterson.org. Accessed May 8, 2020.
<http://katiepaterson.org/portfolio/ancient-darkness-tv/>
- Paterson, Katie. *History of Darkness*, 2011. Photographs and slides. katiepaterson.org. Accessed May 8, 2020.
<http://katiepaterson.org/portfolio/history-of-darkness/>

- Paterson, Katie. *History of Darkness*, 2011. 35 mm slides. katiepaterson.org. Accessed May 8, 2020. <http://katiepaterson.org/portfolio/history-of-darkness/>
- Paterson, Katie. *History of Darkness, Photograph 7/∞*, 2011. Black and white photograph. katiepaterson.org. Accessed May 8, 2020. <http://katiepaterson.org/portfolio/history-of-darkness/>
- Pollock, Jackson. *Constellation*, 1946. Oil on canvas. The Phillips Collection. Accessed March 15, 2020. www.phillipscollection.org/multimedia/2018-02-03-klee-audio-tour-1
- Pollock, Jackson. *Galaxy*, 1947. Oil and aluminium paint on canvas. jackson-pollock.org. Accessed March 15, 2020. <https://www.jackson-pollock.org/galaxy.jsp>
- Pollock, Jackson. *Reflection of the Big Dipper*, 1947. Oil on canvas. jackson-pollock.org. Accessed March 15, 2020. <https://www.jackson-pollock.org/reflection-of-the-big-dipper.jsp>
- Pollock, Jackson. *Shooting Star*, 1947. Oil on canvas. Museo Nacional de Bellas Artes, Buenos Aires. Accessed March 15, 2020. <https://www.bellasartes.gob.ar/en/collection/work/7983/>
- Principe, Lawrence M. "A Practical Science". In *Art and Alchemy: The Mystery of Transformation*, 20 - 35. Dusseldorf: Museum Kunstpalast and Hirmer Publishers, 2014. Published in conjunction with the exhibition of the same name shown at Museum Kunstpalast.
- Restany, Pierre. "Who was Yves Klein?". 1981. yvesklein.com (website). Accessed June 8, 2019. <http://www.yvesklein.com/en/textechoisis/view/7/who-was-yves-klein/>
- Sagan, Carl. *Cosmos*. New York: Random House Inc., 1983.
- Sagan, Carl. *Pale Blue Dot: A Vision of the Human Future in Space*. New York: Ballantine Books, 1997.
- Semiconductor. *Black Rain*, 2009. Video installation. semiconductorfilms.com. Accessed August 8, 2020. <https://semiconductorfilms.com/art/black-rain/>
- Semiconductor. *Brilliant Noise*, 2006. Video installation. semiconductorfilms.com. Accessed August 8, 2020. <https://semiconductorfilms.com/art/brilliant-noise/>

- Semiconductor. *Catching the Light*, 2014. Multi-channel video. semiconductorfilms.com. Accessed August 8, 2020. <https://semiconductorfilms.com/art/catchingthelight/>
- Serisier, Gillian. "Ryoji Ikeda's Test Pattern". Australian Design Review (website). Accessed August 15, 2020. <https://www.australiandesignreview.com/interiors/ryoji-ikedas-test-pattern/>
- Spielmann, Yvonne. "Video: From Technology to Medium." *Art Journal* 65, no. 3 (2006): 54-69. 2020. doi:10.2307/20068481.
- Szulakowska, Urszula. *Alchemy in Contemporary Art*. New York: Ashgate Publishing, 2011.
- "The Farthest Visible Reaches of Space". nasa.gov (website). Accessed May 9, 2020. https://imagine.gsfc.nasa.gov/features/cosmic/farthest_info.html
- "Timeline of space exploration". Australian Geographic (website). Accessed July 8, 2020. <https://www.australiangeographic.com.au/topics/science-environment/2012/08/timeline-of-space-exploration/>
- Turner, Joseph Mallord William. *Snow Storm: Steam-Boat off a Harbour's Mouth*, 1842. Oil on Canvas. Tate UK. Accessed March 4, 2020. <https://www.tate.org.uk/art/artworks/turner-snow-storm-steam-boat-off-a-harbours-mouth-n00530>
- Vall, Renee van de. "Silent Visions: Lyotard on the Sublime". *Art & Design*, Vol 10 1/2 (1995): 68 - 75.
- "Yves Klein Biography". yvesklein.com (website). Accessed March 29, 2019. <http://www.yvesklein.com/en/biographie/>