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Beyond the Spectrum: Unveiling the Uncharted Influence of Ultraviolet Colour Narratives in Contemporary Cinema

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Abstract

This study explores the innovative use of ultraviolet (UV) colours in modern filmmaking. Traditional colour schemes have long been pivotal in cinematic storytelling, yet UV hues remain an underexplored area of study. This research examines the implicit meanings and effects of UV colours on audience perception and engagement, highlighting their potential to alter narrative comprehension and thematic interpretation. The study delves into the technical processes of capturing UV colours, involving specialised equipment and techniques. It emphasises the importance of safety measures due to the harmful effects of prolonged UV exposure. It also provides a theoretical framework, linking UV colour usage to psychological and emotional impacts, drawing on colour psychology and photobiology research. Through detailed analysis of films such as Gaspar Noé's Enter the Void and Alex Garland's Annihilation, this paper illustrates how UV colours can augment surreal and hallucinogenic atmospheres, symbolising profound themes and evoking complex emotional responses. The methodology includes qualitative case studies of these films, examining their visual and thematic elements. The findings suggest that UV colours in film significantly impact viewer emotions and cognition, creating unique atmospheres that enhance storytelling and audience engagement. The paper also discusses practical applications of UV light beyond cinema in fields such as art, forensics, and medicine. This research underscores the need for further technological advancements, artistic experimentation, and empirical studies to fully harness the capabilities of UV light in film production, offering filmmakers a novel tool for creating immersive and emotionally resonant cinematic experiences.

Keywords: Ultraviolet Colours, Hues, Visual Effects, Psychological Impact, Cinematic Narrative.

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1. Introduction

Ultraviolet (UV) and infrared (IR) light have captivated filmmakers and audiences alike with their ability to reveal the unseen. As elements of the electromagnetic spectrum beyond the human eye's perception, these forms of light offer unique aesthetic and narrative possibilities in cinema. Their use in films often symbolises the supernatural, the transcendent, or the psychological, pushing visual storytelling into uncharted territory. Among contemporary filmmakers, Gaspar Noé and Alex Garland have emerged as pioneers in leveraging these technologies. In *Enter the Void* (2009) and *Annihilation* (2018), respectively, UV light becomes a central tool for visualising abstract concepts, exploring altered states of consciousness, and immersing viewers in otherworldly landscapes.

Noé's *Enter the Void* transforms Tokyo into a neon-lit purgatory, using UV light to depict the liminal space between life and death. The glowing effects serve as visual metaphors for the protagonist's fragmented psyche, reflecting his transition from the physical world to the metaphysical. Similarly, Garland's *Annihilation* employs UV lighting to visualise the Shimmer, an alien phenomenon that redefines the laws of biology and physics. The glowing UV landscapes illustrate the Shimmer's transformative effects and mirror the characters' psychological disintegration. These films demonstrate how UV cinematography can create immersive and thought-provoking narratives, aligning technical innovation with thematic depth.

UV and IR light represent distinct regions of the electromagnetic spectrum that offer unique applications in cinematic lighting. UV light, spanning wavelengths of 10 to 400 nm, is subdivided into UVA (315–400 nm), UVB (280–315 nm), and UVC (100–280 nm), each with specificinteractions with materials, such as fluorescence and reflection.[1] On the other hand, IR light operates within the 700 nm to 1 mm range, enabling low-light imaging and atmospheric

[1] Tseng, Z. C., Lin, P. T., & Huang, C. Y. (2024). Machine learning-assisted wavelength recognition in Cu2O/Si self-powered photodetector arrays for advanced image sensing applications. ACS Applied Electronic Materials, 4(1), p. 4.

penetration.[1] Recent advancements such as the development of Cu2O/Si self-powered photodetector arrays have allowed for machine learning-assisted wavelength recognition, enhancing the precision and adaptability of these technologies in cinematic applications.[2]

Integrating UV and IR technologies into film production benefits from innovations in material sciences, particularly in coatings and nanostructures.[3] For instance, sol-gel spin-coated ZnO thin films are hydrophobic and radiation-resistant, making them invaluable for extended use under intense lighting conditions.[4] Similarly, incorporating nanostructured materials such as Bi-doped MgAl2O4 enhances the intensity and stability of light emissions, providing filmmakers with more robust and consistent lighting sources.[5] These advancements form the technical foundation for leveraging UV and IR light in innovative and immersive cinematic storytelling.

The following sections will examine into the films' use of UV lighting, drawing on insights from the references to contextualise their significance in the broader landscape of visual storytelling.

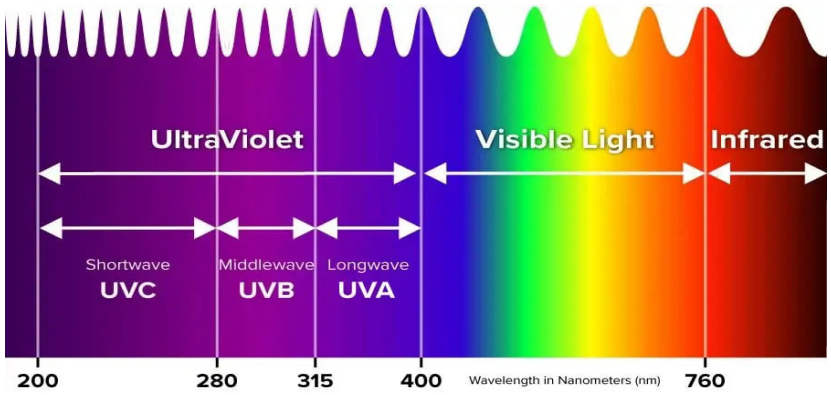

Figure 1: Depiction of the light spectrum. HepaCart, "Far-UV VS. Near-UV," *The HepaCart Blog*, May 31, 2017. https://www.hepacart.com/blog/far-uv-vs.-near-uv.

[1] Wang, Y., Zhou, P., Lin, H., & Du, J. (2024). Recent Advancements in UV and IR Light in Visual Media. Optica Online Library, 32(3), p. 81.

[2] Tseng et al., p. 7.

[3] Bordwell, David, & Thompson, Kristin. (2019). Film Art: An Introduction (12th ed.). New York, NY, McGraw-Hill Education, p. 306.

[4] Yepuri, V., Sigamani, S., & Swaminadham, V. (2024). Sol-gel spin coating of ZnO thin films for hydrophobic and radiation-resistant applications. Journal of Sol-Gel Science and Technology, 3(2), p. 8.

[5] Gorni, G., Serna, R., & Gonzalo, J. (2024). Tuning light emission in Bi and V codoped MgAl2O4 nanostructured films. Ceramics International, 3(1), p. 16.

2. UV Light in *Enter the Void*

Enter the Void is a landmark in UV cinematography, employing UV light as a central narrative and aesthetic tool to create a visual language that mirrors the protagonist's psychological and metaphysical journey. UV lighting's ability to reveal hidden elements gives it an otherworldly quality, enhancing the film's exploration of psychological and metaphysical themes. Noé uses UV lighting to transform Tokyo into a surreal, glowing cityscape that aligns with the protagonist's subjective reality. The opening credits alone establish the film's neon-infused psychedelic tone, using pulsating UV visuals to immerse the audience in a heightened sensory experience.[6] These techniques align with Birren's theories on the psychological impact of fluorescent lighting, which he argued can evoke profound emotional responses.[7]

The technical precision required for UV cinematography in *Enter the Void* reflects advances in digital imaging and UV LED technology. Advances in photodetector technologies complemented the technical intricacies of these UV lighting setups. Cu2O/Si photodetector arrays combined with machine learning algorithms have enabled precise recognition of UV wavelengths, ensuring accurate colour representation and intensity during post-production.[8] These innovations not only amplified the film's visual impact but also redefined the boundaries of UV cinematography, establishing a benchmark for technical and artistic integration. By calibrating light sources and post-production effects, Noé achieved the film's iconic glow, seamlessly merging the UV tones with Tokyo's neon landscape.[9]

2.1 Oscar's Drug Trip Visualises Altered States

Enter the Void (2009) follows Oscar, and young Tokyo drug dealer, who get skilled in police drug raid and experiences post-mortem journeys thorugh the metaphysical space of memory and perception. After death, Oscar's consciousness detaches from his physical body and

[6] Cipolla, Matt. (2019). "Enter the Void and the Inhuman Condition." RogerEbert.com. Last modified May 20, 2019.

[7] Birren, Faber. (2013). Color Psychology and Color Therapy: A Factual Study of the Influence of Color on Human Life. Eastford, CT, Martino Fine Books, p. 45.

[8] Tseng et al., p. 9.

[9] Landau, D. (2023). Lighting for cinematography. Bloomsbury Academic, p. 251.

drifts through time and space, revisiting important moments from his lived life and seeing the impact of his absence from his unlived life. Shaped by severe childhood trauma and a deep attachment to his sister Linda, Oscar guides the audience through a disembodied exploration of life after death, and potential rebirth. The film's iconic drug trip sequence relies heavily on UV-sensitive materials and fluorescence to depict altered states of consciousness, which are enhanced by precisely calibrating light wavelengths.[10] The application of sol-gel spin-coated ZnO thin films enabled vibrant fluorescence in key scenes, creating a surreal atmosphere that immerses viewers in the protagonist's altered state.[11] Additionally, Bi and V codoped MgAl2O4 nanostructured films were instrumental in achieving the film's characteristic UV light effects, offering stability and high-intensity emissions crucial for prolonged shoots.[12]

The scene begins with Oscar inhaling dimethyltryptamine (DMT), transitioning the visuals from naturalistic to psychedelic. UV light amplifies the swirling fluorescent patterns, creating a glowing, disorienting visualisation of his inner world. This use of UV lighting demonstrates that fluorescent colours evoke heightened emotional responses, such as awe and confusion.[13] The fluorescent visuals not only enhance the sensory impact but also mirror Oscar's psychological fragmentation, immersing viewers in his disjointed perspective.[14] This technique highlights Noé's ability to visualise abstract experiences, creating a narrative where the UV glow becomes a metaphor for transcendence and transformation.[15] The sequence exemplifies how UV lighting serves as a narrative device, visualising Oscar's internal journey while engaging the audience on both sensory and emotional levels.

[10] Cipolla, 2019.

[11] Yepuri et al., p. 6.

[12] Gorni et al., p. 15.

[13] Elliott, Andrew J., & Maier, Markus A. (2014). "Color Psychology: Effects of Perceiving Color on Psychological Functioning in Humans." Annual Review of Psychology, 65, p. 102.

[14] Gazi, J. (2017). Blinking and Thinking: The Embodied Perceptions of Presence and Remembrance in Gaspar Noé's Enter the Void. Film Criticism, 41(1), p. 2.

[15] Cipolla, 2019.

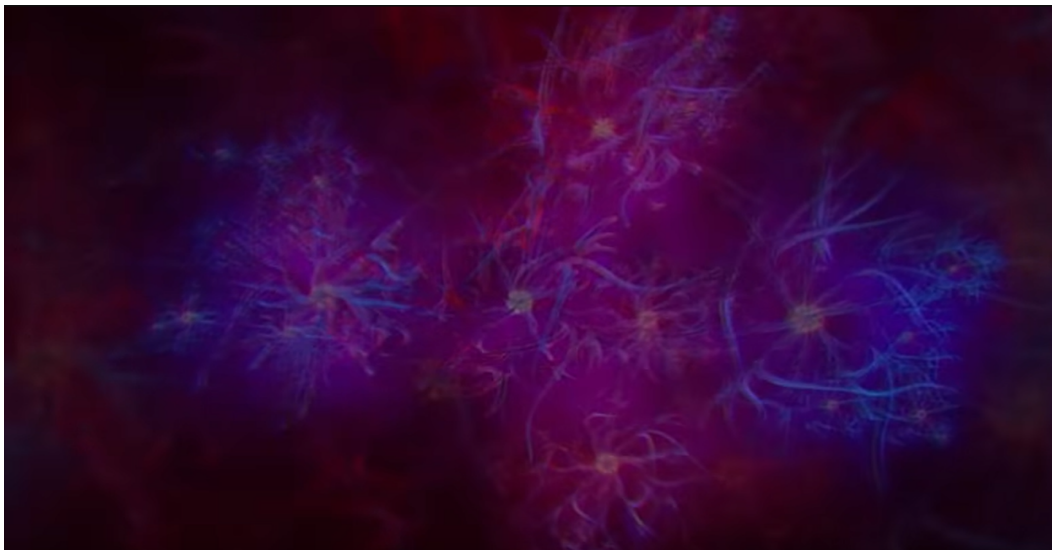

Figure 2: Protagonist Oscar's visualisation of a DMT drug trip illuminated with UV light. Noé, Gaspar. (Director). (2009). *Enter the Void* [Film]. Fidélité Films.

In *Enter the Void*, Tokyo emerges as a character in its own right; its neon, lit streets transformed into a pulsating organism through UV cinematography. Dynamic camera movements capture the interplay of UV tones and reflective surfaces, creating an immersive, surreal environment that mirrors Oscar's fragmented perception of reality.[16] One continuous shot of Tokyo's streets showcases fluorescent signage and glowing reflections, aligning the city's aesthetic with the film's themes of urban alienation and psychological disorientation.[17] Integrating UV lighting into Tokyo's visual language elevates the city from a mere setting to a narrative force. The fluorescence suggests hidden dimensions, resonating with Street and Yumibe's theories on chromatic modernity, which emphasise the role of colour in shaping emotional and cultural narratives.[18] By embedding UV cinematography into Tokyo's fabric, Noé amplifies the city's chaotic energy and its metaphorical significance as a liminal space for transformation.

2.2 The Death Scene Uses UV Lighting as a Gateway and as a Narrative Catalyst

Oscar's death is a pivotal moment in *Enter the Void*, transitioning the narrative from the physical to the metaphysical. The cramped bathroom

16 Gazi, 2017.

17 Cipolla, 2019.

18 Street, S., & Yumibe, J. (2015). Chromatic Modernity: Color, Cinema, and Media of the 1920s. Columbia University Press, p. 120.

setting becomes a luminous space, with UV lighting transforming its surfaces into glowing, reflective canvases.[19] This visualisation captures the liminality of death, as fluorescent patterns radiate from Oscar's body, symbolising his detachment from the physical world.[20] The UV glow imbues the scene with a surreal quality, aligning with Blaszczyk's assertion that fluorescence in visual media evokes both unease and wonder.[21] The glowing bathroom tiles and reflective surfaces create a disorienting sensory overload, immersing viewers in Oscar's transition to the afterlife.[22] This alignment between UV cinematography and the film's existential themes exemplifies Noé's mastery of UV lighting as a storytelling tool.

Throughout *Enter the Void*, UV cinematography functions as a narrative catalyst, visualising Oscar's psychological and metaphysical journey. The glowing UV effects in his drug trips and the afterlife sequences serve as metaphors for his fragmented perception and disembodied consciousness.[23] These visuals immerse viewers in Oscar's subjective reality, aligning UV lighting with the film's psychological and philosophical dimensions. Using UV lighting to depict Oscar's altered states, Noé bridges the gap between the tangible and the intangible, creating a visual language that resonates emotionally and intellectually.[24] The fluorescent tones amplify the narrative's focus on transition and impermanence, making UV cinematography an integral part of the film's sensory and thematic impact.

Key scenes in *Enter the Void* highlight the emotional resonance of UV cinematography, particularly when aligned with themes of memory and trauma. In flashbacks to Oscar's childhood, UV lighting creates glowing, ephemeral visuals that evoke nostalgia and loss.[25] The fluorescence amplifies the fragility of memory, reflecting Birren's theory that fluorescent colours elicit introspection and emotional

19 Gazi, 2017.

20 Cipolla, 2019.

21 Blaszczyk, R. L. (2012). The color revolution. MIT Press, p. 112.

22 Cipolla, 2019.

23 Gazi, 2017.

24 Gazi, 2017.

25 Cipolla, 2019.

depth.[26] Another poignant scene involves Oscar observing his sister Linda as she grieves his death.[27] UV lighting creates a glowing aura around her, symbolising their bond and her emotional struggle.[28] The fluorescence adds poignancy to the scene, aligning the visual language with the narrative's emotional core.[29]

UV lighting in *Enter the Void* transcends its aesthetic appeal, becoming a tool for exploring complex consciousness, identity, and transformation themes. Advances in digital imaging and LED UV technology enabled Noé to achieve unprecedented levels of vibrancy, pushing the boundaries of what UV cinematography can accomplish.[30] By aligning UV cinematography with the narrative's sensory, emotional, and philosophical dimensions, Noé creates a film that is both visually stunning and intellectually engaging.[31] The glowing visuals immerse viewers in Oscar's journey, making *Enter the Void* a groundbreaking achievement in contemporary cinema.

3. UV Light in Annihilation

Annihilation masterfully employs UV lighting to portray the alien phenomenon known as the Shimmer, a mysterious zone that mutates everything it touches.[32] The Shimmer's otherworldly aesthetic aligns seamlessly with the film's themes of transformation and adaptation. The use of UV-sensitive materials within the Shimmer's flora and fauna creates a consistent and cohesive visual language. For instance, the lighthouse sequence features sol-gel-coated ZnO thin films, which facilitate the reflection and fluorescence of UV light, thereby highlighting the dynamic and alien environment of the Shimmer.[33]

[26] Birren, p. 50.

[27] Gazi, 2017.

[28] Gazi, 2017.

[29] Blaszczyk, p. 118.

[30] Ray, S. F. (1994). Applied Photographic Optics: Lenses and Optical Systems for Photography, Film, Video, and Electronic Imaging (2nd ed.). Focal Press.

[31] Cipolla, 2019.

[32] Boon, M. (2020). Chromophilic Annihilation: Posthuman prisms and new materialist refractions of reality. Pulse: The Journal of Science and Culture, 7(1), p. 2.

[33] Yepuri et al., p. 10.

Applying molecularly structured chitosan/titanium dioxide nanocomposite films adds depth and texture to the UV lighting effects. This enables the filmmakers to achieve nuanced transitions between natural and artificial elements within the Shimmer.[34] Integrating Cu2O/Si photodetector arrays provides precision in capturing UV light intensity, ensuring that the final visuals retain their vividness and accuracy.[35] These advancements illustrate how *Annihilation* leverages cutting-edge technologies to elevate its narrative and aesthetic dimensions.

The Shimmer merges human, animal, and plant DNA into new and unsettling forms, with UV lighting playing a crucial role in establishing its visual and thematic language.[36] Garland uses this lighting to depict surreal landscapes and mutated life forms, which align with the film's exploration of identity, transformation, and the unknown. These glowing effects amplify the Shimmer's eerie beauty and mirror the psychological disintegration of the characters, creating an immersive narrative experience.[37] The integration of UV lighting into the aesthetic reinforces the themes of dissolution and recombination, with the glowing visuals symbolising the characters' physical and emotional changes.

3.1 The Shimmer and Visualizing an Alien Ecosystem

The boundaries of the Shimmer are marked by a luminous prismatic barrier that refracts light into kaleidoscopic patterns, signalling its otherworldly nature.[38] This iridescent visual, created with UV lighting, pulsates with instability and power, underscoring its mutagenic properties. The glowing aesthetic aligns with the principles of UV optics, highlighting fluorescence and dynamic effects when UV radiation interacts with certain materials.[39] Inside, the Shimmer reveals

[34] Guirguis, O., & Alharbi, N. D. (2024). Molecular structural and linear/nonlinear optical features of chitosan/titanium dioxide nanocomposite films. East European Journal of Physics, 2(1), p. 6.

[35] Tseng et al., p. 12.

[36] Boon, p. 4.

[37] Boon, p. 7.

[38] Boon, p. 3.

[39] Ray, p. 27.

landscapes transformed by its alien influence. Fluorescent plants and mutated animals, such as a deer with glowing fur or a crocodile with iridescent scales, are a visual representation of the recombination of DNA.[40] These glowing effects immerse viewers in the Shimmer's alien environment, evoking both awe and unease while aligning with theories regarding the psychological impact of intense visuals.

This overwhelming sensory design mirrors the growing fear and disorientation of the characters as they venture deeper into the Shimmer, enhancing their connection to the unknown, and drawing the audience into the characters' psychological unravelling as viewers also connect with the unknown through shared sensory immersion.

Figure 4: Protagonist Lena pictured viewing a UV light phenomenon. Garland, Alex. (Director). (2018). *Annihilation* [Film]. Paramount Pictures.

3.2 The Mutant Bear Scene: Horror Amplified by UV Lighting

A pivotal moment in *Annihilation* is the terrifying encounter with the mutant bear, a creature that has absorbed the screams of its victims. UV lighting heightens the horror by illuminating the bear's grotesque mutations; glowing patches of fur and exposed tissue highlight its unnatural transformation.[41] The stark contrast between the fluorescent bear and the dark surroundings emphasises its otherworldliness, amplifying the tension. The combination of UV

[40] Boon, p. 11.

[41] Boon, p. 13.

lighting and sound design intensifies the psychological impact.[42] As the bear emits distorted human screams, its glowing features pulsate, creating a visceral, synesthetic experience that heightens fear.[43] This scene exemplifies horror cinematography principles, where glowing effects disorient viewers and evoke vulnerability.[44] The bear's glowing mutations also serve as visual evidence of the Shimmer's ability to rewrite DNA, reflecting biological mutation theories, which note how UV radiation induces cellular level changes with unpredictable outcomes.[45] This sequence solidifies the bear as a horrifying embodiment of the Shimmer's transformative power.

3.3 The Lighthouse as a Fusion of Light and Mutation

The lighthouse serves as the climactic setting of *Annihilation*, representing the Shimmer's epicentre. Bathed in UV light, its glowing walls and fluorescent surroundings symbolise the dissolution of identity and the merging of human and alien elements.[46] The UV aesthetic enhances this space's surreal and transformative quality, amplifying the narrative's themes of change and transcendence. The climactic confrontation between Lena and her alien doppelgänger is visually striking, with UV lighting emphasising their unity and mirroring movements.[47] This scene explores the dissolution of boundaries between self and other, aligning with fluorescence as a metaphor for merging disparate elements.[48] The glowing UV visuals, synchronised with the ambient soundtrack, create an immersive sensory experience underscoring the film's existential themes and heightening its emotional resonance.[49] This sequence epitomises

[42] Wang et al., p. 82.

[43] Boon, p. 13.

[44] Landau, p. 220.

[45] Veleva, Bistra I., Bezooijen, Rutger L. van, Chel, Victor G. M., Numans, Mattijs E., & Caljouw, Monique A. A. (2018). "Effect of ultraviolet light on mood, depressive disorders and well-being." Photodermatology, Photoimmunology & Photomedicine, 34(5), p. 292.

[46] Boon, p. 2.

[47] Boon, p. 16.

[48] Elliott and Maier, p. 108.

[49] Boon, p. 11.

Garland's use of UV cinematography to craft a visually and thematically profound conclusion.

3.4 The Pool Scene as A Haunting Display of Mutation

Another unforgettable scene is the discovery of a colleague's mutated remains in the Shimmer.[50] UV lighting accentuates the grotesque organic growth overtaking the body, highlighting fluorescent veins and tissues that seem alive.[51] This aesthetic conveys the Shimmer's ability to dissolve and recombine life forms, turning them into hybrid entities.[52] The interplay between UV lighting and texture amplifies the scene's eerie atmosphere, immersing viewers in its unsettling beauty.[53] This scene also explores the psychological impact of mutation, as the fluorescent visuals intensify the team's growing paranoia and fear.[54] The glowing patterns and UV-induced fluorescence reflect the characters' disintegration, aligning with theories of colour psychology, which suggest that fluorescent hues evoke intense emotional responses.[55] In this sequence, Garland's use of UV cinematography deepens the narrative's exploration of transformation, creating a sensory and emotional impact that lingers.

3.5 UV Lighting as a Metaphor for Disintegration and Human Transformation

UV lighting in *Annihilation* also metaphorically visualises the characters' psychological transformations. Each character succumbs to the Shimmer in unique ways, reflecting their struggles with identity and reality. UV lighting highlights their physical and emotional changes, symbolising their fragmentation and loss of self. This alignment between UV cinematography and psychological themes is central to the film's exploration of human vulnerability.

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50 Butler, C. (2022). Shimmering in the Swamp: Wetlands, Danger, and Ecological Refractions in Annihilation. ISLE: Interdisciplinary Studies in Literature and Environment, 29(4), p. 1131.

51 Butler, p. 1132.

52 Boon, p. 13.

53 Ray, p. 74.

54 Boon, p. 14.

55 Elliott & Maier, p. 107.

Josie's transformation is particularly poignant. Her body glows with UV hues as she merges with plant life, signifying her acceptance of dissolution.[56] This moment visualises identity's fragility, aligning with theories of chromatic modernity, which propose that light and colour can express personal transformation.[57] Similarly, Lena's climactic encounter with her alien counterpart uses UV lighting to depict the merging of self and other, enhancing the narrative's existential themes.[58] These transformations, visualised through UV cinematography, underscore *Annihilation*'s emotional and philosophical depth.

UV lighting also serves as a metaphor for evolution within the Shimmer. By rewriting DNA, the Shimmer creates hybrid forms of life that defy human understanding.[59] The glowing UV visuals of mutated flora and fauna symbolise adaptation and interconnectedness, aligning with ecological adaptation theories.[60] These visuals emphasise the transformative potential of UV radiation, turning the Shimmer into a site of alien evolution. The Shimmer's glowing visuals also evoke mystery and wonder, inviting viewers to contemplate the limits of human understanding.[61] By aligning UV cinematography with philosophical themes, Garland creates a thought-provoking narrative that explores transformation and adaptation, solidifying UV lighting as a vital element of the film's visual language.

4. Comparative Analysis of UV Cinematography in Enter the Void and Annihilation

In *Enter the Void*, Noé employs UV lighting to depict altered consciousness and metaphysical transitions, while Garland's *Annihilation* uses it to illustrate the Shimmer's transformative and surreal qualities. Through innovative UV cinematography, both films explore transformation, whether of consciousness, identity, or biology. This section examines

56 Butler, p. 1126.

57 Street & Yumibe, p. 125.

58 Butler, p. 1125.

59 Boon, p. 3.

60 Landau, p. 270.

61 Boon, p. 4.

key scenes, technical innovations, and thematic uses of UV lighting, revealing how these films redefine storytelling.

4.1 UV Lighting as a Narrative Tool

UV lighting serves as a metaphor for transformation in both films. *Enter the Void* reflects Oscar's fragmented psyche and journey into the afterlife. The neon, lit streets of Tokyo rendered in UV hues mirror his disjointed perception of reality, aligning the visual language with themes of consciousness and transcendence.[62] In *Annihilation*, UV light visualises the Shimmer's mutagenic ecosystem. The glowing flora and fauna blur the lines between human, animal, and plant life, embodying biological mutation and adaptation themes.[63] While Noé uses UV lighting consistently throughout his film, Garland applies it selectively, emphasizing pivotal transformations.

Oscar's death scene in *Enter the Void* epitomises the emotional depth of UV cinematography. The fluorescent bathroom tiles transform the space into an ethereal realm, symbolising his transition into the metaphysical.[64] This immersive scene reflects Oscar's existential disintegration, drawing viewers into his subjective reality. In *Annihilation*, Lena's confrontation with her doppelgänger at the lighthouse showcases UV lighting's symbolic power. The glowing patterns on the walls amplify the dissolution of self and the alien's transformative force, creating a hypnotic visual and sensory overload.[65] Both films use UV lighting to heighten emotional resonance, albeit in distinct ways.

Noé's integration of UV lighting with neon tones in *Enter the Void* relies on digital imaging and precise calibration. This seamless aesthetic aligns with the film's psychedelic themes, reflecting Diffey's theories on UV radiation's dynamic visual effects.[66] Garland combines UV lighting with CGI in *Annihilation*, creating iridescent patterns visualising the Shimmer's transformative qualities. This blending of

62 Cipolla, 2019.

63 Butler, p. 1125.

64 Gaza, 2017.

65 Boon, p. 4.

66 Diffey, p. 7.

practical and digital techniques aligns with Landau's emphasis on technological evolution in cinematography.[67] Both films showcase UV lighting's versatility in achieving unique visual languages.

4.2 Themes of Transformation and Identity

UV lighting in *Enter the Void* symbolises Oscar's psychological disintegration and transcendence. The glowing visuals reflect his fragmented memories and existential struggles, engaging viewers on multiple levels.[68] In *Annihilation*, UV lighting depicts the Shimmer's merging of identities, visualising adaptation and mutation. The glowing patterns on hybrid creatures embody the narrative's exploration of transformation, dissolving traditional boundaries.[69] Both films use UV cinematography to navigate the complexities of identity and change, albeit through differing approaches. In *Enter the Void*, UV lighting externalises Oscar's fragile psyche.[70] In *Annihilation*, UV effects highlight the characters' biological vulnerability to the Shimmer's mutations, visualising the fragility of human physiology under alien influence.[71] Both films use UV lighting to underscore human vulnerability, exploring its psychological and biological dimensions.

UV cinematography in *Enter the Void* visualises the disintegration of boundaries between life and death.[72] The glowing visuals create an immersive experience, blurring reality and hallucination. UV lighting in *Annihilation* symbolises the Shimmer's hybridisation of life forms, representing the fusion of human and alien traits.[73] This interplay reflects Bramesco's observations on fluorescence as a medium for exploring liminality.[74] UV lighting further enhances emotional immersion in both films by aligning visuals with narrative depth.

67 Landau, p. 259.

68 Cipolla, 2019.

69 Boon, p. 6.

70 Birren, p. 55.

71 Veleva et al., p. 295.

72 Cipolla, 2019.

73 Butler, p. 1125.

74 Bramesco, Charles. (2023). Colours of Film: The Story of Cinema in 50 Palettes. London, UK, Frances Lincoln, p. 78.

In *Enter the Void*, the glowing afterlife sequences amplify Oscar's introspection and emotional weight.[75] In *Annihilation*, UV effects visualise the characters' physical and psychological changes, creating moments of awe and terror, such as Josie's serene fusion with plant life.[76] This sensory engagement aligns with Bramesco's theories on fluorescence's emotional impact.[77]

5. Thematic and Philosophical Dimensions of UV Lighting in Enter the Void and Annihilation

UV lighting in *Enter the Void* and *Annihilation* is more than a visual tool, delving into themes of transformation, identity, and the unknown. *Enter the Void* employs UV cinematography to explore consciousness and the afterlife, while *Annihilation* examines mutation and boundary dissolution under the influence of an alien force. Through these films, UV lighting bridges narrative and philosophical inquiry, visualising intangible concepts and engaging audiences at a sensory and intellectual level.

5.1 UV Lighting and the Philosophy of Transformation

In both films, UV lighting visualises transformation as a central theme. In *Enter the Void*, Oscar's afterlife journey is marked by glowing UV visuals representing his disintegration and rebirth. The fluorescence underlines the fragmented nature of his memories, aligning with transformation theories as a visualised renewal process.[78] The neon-drenched Tokyo landscape serves as a metaphor for the fluidity of consciousness, immersing viewers in Oscar's shifting perceptions. Similarly, in *Annihilation*, UV lighting highlights the mutagenic effects of the Shimmer. The fluorescent patterns symbolise biological hybridisation, reflecting the narrative's exploration of evolution and adaptation. The fusion of human and alien traits, seen in sequences

[75] Cipolla, 2019.

[76] Boon, p. 5.

[77] Bramesco, p. 85.

[78] Chorvinsky, M. (1992). Ultraviolet cinematography. Image Technology (London), 74(2), p. 41.

like Josie's transformation into flora, demonstrates how UV light visualises change at a cellular and existential level.[79]

The sublime, a fusion of awe, terror, and wonder, is a key aesthetic principle in these filmsUV lighting transforms these narratives into meditations on beauty and fear. These visualisations align with ecological theories on the disruptive potential of UV radiation to create new, hybrid forms.[80]

UV lighting amplifies the emotional resonance of both films. In *Enter the Void*, the afterlife sequences evoke introspection and melancholy, mirroring Oscar's internal conflict. The UV visuals, particularly in his encounters with memories of his sister, amplify the emotional weight of his metaphysical journey.[81] In *Annihilation*, UV lighting deepens the characters' transformations, especially in the face of violence and psychological unravelling. When Cass is is attacked and violently dragged off into dense forest by an unseen creature, the survivors regroup in a small clearing. Ambient light is tinged with faint ultraviolet luminance filtering through the mutated foliage into the clearing. The scene is bathed in a surreal, sickly glow that heightens the unnatural silence and exacerbates the group's terror and confusion. The eerie stillness and the way UV light subtly outlines the iridescent vegetation intensify the feeling of being watched and hunted by an alien force that warps both biology and atmosphere. In this moment, UV lighting externalises the group's destabilised emotional state, reinforcing a sense of psychological and environmental alienation. The emotional depth achieved through UV lighting connects audiences to the character's internal and external journeys.

5.2 UV Lighting as a Medium for Psychological Exploration

Both films use UV lighting to visualise the psychological dimensions of their characters. In *Enter the Void*, Oscar's fragmented psyche is mirrored in the UV visuals of Tokyo, where glowing neon hues create a dreamlike representation of his disoriented consciousness. Key sequences, such as his out-of-body explorations, blur the boundaries

[79] Veleva et al., p. 296.

[80] Veleva et al., p. 297.

[81] Cipolla, 2019.

between reality and memory, immersing viewers in his subjective experience.[82] In *Annihilation*, the Shimmer's UV aesthetic reflects the characters' internal struggles, particularly Lena's confrontation with guilt and identity.[83] The interplay of UV patterns with her evolving psychological state underscores the narrative's exploration of transformation and resilience.[84] UV lighting thus becomes a tool for exploring the inner landscapes of human experience.

In both films, UV lighting visualises "the Other," entities or phenomena that defy human understanding. In *Enter the Void*, UV lighting transforms familiar spaces into uncanny landscapes, capturing the alien nature of the metaphysical realm. This aesthetic choice aligns with theories on fluorescence as a medium for evoking the uncanny.[85] In *Annihilation*, the Shimmer itself becomes "the Other," with its alien beauty.[86] These films demonstrate the potential of UV lighting to engage audiences in encounters with the alien and incomprehensible.

In both films, UV lighting is a visual metaphor for their thematic concerns. In *Enter the Void*, UV cinematography symbolises the interconnectedness of memory and identity, turning Oscar's journey into a meditation on existence. The glowing afterlife sequences reflect the fluidity of his consciousness, inviting viewers to contemplate metaphysical questions.[87] In *Annihilation*, UV lighting represents transformation and adaptation, visualising the Shimmer's alien influence on biology and identity. The fluorescent hues that permeate the Shimmer's landscape become a metaphor for the dissolution of boundaries, making UV cinematography central to the narrative's exploration of the unknown.[88]

In *Annihilation*, UV lighting transforms the Shimmer into an alien ecosystem where the rules of biology and physics constantly shift. The use of UV lighting raises ethical questions about the manipulation

[82] Birren, p. 53.

[83] Boon, p. 7.

[84] Boon, p. 7.

[85] Street & Yumibe, p. 131.

[86] Boon, p. 8.

[87] Cipolla, 2019.

[88] Boon, p. 5.

of audience perception. In *Enter the Void*, UV cinematography creates a disorienting experience that challenges viewers' sensory thresholds, raising questions about the balance between immersion and accessibility.[89] In *Annihilation*, the Shimmer's UV aesthetic invites contemplation of the ethical consequences of scientific experimentation and its unintended effects.[90] Lena's confrontation with the alien entity becomes a reflection of humanity's complex relationship with knowledge and transformation.[91] These films highlight the role of UV lighting in engaging audiences with profound moral and philosophical questions.

6. Technical and Artistic Innovations in UV Cinematography

The technical and artistic innovations in UV and infrared cinematography represent a convergence of scientific precision and creative exploration. With its unique ability to interact with fluorescent materials, UV light has been enhanced by introducing advanced materials such as Bi-doped MgAl2O4 films.[92] These nanostructured films offer high-intensity emissions, enabling filmmakers to maintain consistent lighting effects during long shoots, as demonstrated in *Enter the Void*.[93] Sol-gel spin-coated ZnO thin films have refined the quality of UV lighting setups, offering resistance to radiation-induced degradation while enhancing vibrancy and durability.[94]

Infrared cinematography, though less explored, benefits significantly from advancements in detector technology. Uncooled IR detectors, originally developed for medical imaging, have been adapted for cinematic applications, capturing detailed visuals in low-light

89 Landau, p. 278.

90 Butler, p. 1131.

91 Boon, p. 18.

92 Yurddaşkal, M., Bozatlı, B., & Yılmaz, T. (2024). Production of Zinc Oxide (ZnO) Doped Biodegradable Film and Investigation of its Photocatalytic/Antimicrobial Properties. Journal of Photochemistry and Photobiology A: Chemistry, 1(1), p. 25.

93 Gorni et al., p. 17.

94 Yepuri et al., p. 9.

conditions without requiring complex cooling systems.[95] Integrating IoT-enabled dosimetric systems allows filmmakers to dynamically monitor and optimise both UV and IR lighting during production, ensuring that these technologies enhance rather than overwhelm the narrative.[96] Together, these innovations push the boundaries of what is possible in visual storytelling, blending technical precision with artistic expression.

6.1 Lighting Equipment and UV-Sensitive Materials

The visual impact of UV cinematography begins with selecting appropriate lighting equipment and materials. *Enter the Void* employed UV, sensitive fluorescent paints to amplify the glowing neon aesthetic of Tokyo. Careful calibration of UV light sources ensured the luminous effects complemented the reflective cityscape, creating a surreal, otherworldly atmosphere.[97] This meticulous integration aligns with Diffey's principles on interacting UV radiation with surfaces, highlighting how reflective materials intensify fluorescent effects.[98]

The fusion of UV and IR light technologies in cinematography further involves precision engineering and digital enhancement. UV LEDs, favoured for their energy efficiency, provide calibrated spectral emissions, while sol-gel coatings on IR sensors reduce reflection losses, ensuring clarity and visual impact.[99] Fourier-transform infrared spectroscopy (FTIR) aids in optimising IR film materials for maximum contrast and texture fidelity.[100] Combining synchronised UV and IR sources, hybrid lighting systems enable filmmakers to transition between spectral effects seamlessly, enhancing dramatic tension. These advancements allow for a deeper integration of spectral lighting into visual storytelling, achieving nuanced blends of fluorescence and

95 Song, X. (2019). Advances in uncooled IR detectors for medical imaging applications. Applied Optics, 58(9), p. 203.

96 Baena-Navarro, R., & Alcala-Varilla, L. (2024). Gamma and ultraviolet radiation analysis: An IoT-based dosimetric study. Bulletin of Electrical Engineering and Informatics, 12(1), p. 62.

97 Gazi, 2017.

98 Diffey, p. 9.

99 Yepuri et al., p. 12.

100 Guirguis & Alharbi, p. 7.

luminance for heightened cinematic immersion.[101] This confluence of art and technology exemplifies the transformative potential of UV and IR light in modern filmmaking.

In *Annihilation*, Garland's approach blends UV, sensitive paints with practical lighting to construct the Shimmer's dynamic environment. Objects and props were coated with UV-reactive materials, producing vivid glowing patterns that reflected the narrative's focus on mutation and transformation.[102] To enhance the surreal quality of these visuals, Garland incorporated digital effects, extending the luminosity and detail of UV scenes beyond what practical techniques could achieve.[103] This interplay between traditional and modern methods mirrors Landau's discussion of hybrid cinematography, which stresses the importance of technological synthesis in creating innovative aesthetics.[104] Both films demonstrate the versatility of UV, sensitive materials in realising their unique visual languages. While *Enter the Void* utilises UV light to create an immersive and disorienting urban dreamscape, *Annihilation* uses it to visualise the biological and psychological transformations within the Shimmer. These contrasting applications emphasize the narrative and aesthetic potential of UV cinematography.

6.2 Post-Production Techniques and Colour Grading

Post-production processes are also critical to shaping UV cinematography's aesthetic and emotional resonance. In Enter the Void, extensive colour grading enhances the vibrancy of UV visuals, balancing the intensity of neon tones with the film's psychedelic themes.105 This refinement ensures that the glowing effects serve the narrative without overwhelming its emotional subtleties. Noé's integration of UV tones into the overall palette exemplifies the delicate balance needed to achieve a cohesive visual language.

In *Annihilation*, post-production was equally instrumental in blending practical UV lighting with computer-generated imagery

101 Tseng et al., p. 12.

102 Cipolla, 2019.

103 Cipolla, 2019.

104 Landau, p. 267.

105 Cipolla, 2019.

(CGI). Colour grading amplifies the ethereal quality of the Shimmer, creating a seamless interplay of glowing patterns and textures.[106] The iridescent aesthetic, carefully crafted in post-production, is a visual metaphor for the narrative's exploration of adaptation and identity.[107] Misek's insights into digital post-production reinforce the importance of colour grading in enhancing a film's emotional impact and coherence, highlighting its pivotal role in *Annihilation*'s luminous design.[108] Both films demonstrate the necessity of advanced post-production techniques in UV cinematography. By refining the intensity and hue of UV visuals, directors can align their aesthetic choices with their narratives' thematic and emotional dimensions, creating a more immersive viewer experience.

6.3 The Interplay Between Practical and Digital Effects

The dynamic interplay between practical and digital effects defines UV cinematography in both *Enter the Void* and *Annihilation*. In *Enter the Void*, practical UV lighting was pivotal during production, while digital effects enhanced the uniformity and luminosity of the visuals in post-production.[109] This combination allowed the film's glowing aesthetic to integrate seamlessly into its narrative, heightening the sensory immersion. Garland's approach in *Annihilation* similarly relied on this balance. Practical UV lighting illuminated the Shimmer's organic mutations, while CGI added depth and complexity to its patterns and textures.[110] This layered technique created a dynamic aesthetic that evolved alongside the narrative, reflecting the characters' psychological transformations.[111] Landau's emphasis on hybrid techniques stresses this balance, illustrating how practical and digital effects complement each other to achieve innovative visual

106 Butler, p. 1131.

107 Butler, p. 1130.

108 Misek, R. (2010). Chromatic cinema: A history of screen color. Wiley-Blackwell, p. 112.

109 Gazi, 2017.

110 Boon, p. 8.

111 Boon, p. 9.

styles.[112] Through the interplay of practical and digital effects, both films elevate UV lighting from a visual element to a storytelling device. This synthesis of techniques demonstrates how UV cinematography can push the boundaries of visual storytelling, creating immersive and narratively rich experiences.

Key scenes in *Enter the Void* and *Annihilation* showcase the transformative power of UV lighting. By integrating UV lighting into key moments, *Enter the Void* and *Annihilation* create immersive experiences that resonate deeply with viewers.

6.4 Challenges in Implementing UV Cinematography

While UV cinematography offers immense creative potential, its implementation poses significant technical challenges. In *Enter the Void*, achieving the correct intensity and balance of UV lighting required meticulous calibration. Overexposure risked disrupting the immersive aesthetic, necessitating constant adjustments during and after production.[113] In *Annihilation*, blending practical UV effects with CGI presented additional complexities. UV lights' physical positioning and intensity are needed to complement digital enhancements without creating inconsistencies.[114] This challenge underscores Landau's assertion that hybrid cinematography demands close collaboration between creative and technical teams.[115] Despite these challenges, both films demonstrate how careful planning and innovation can overcome technical hurdles. By addressing these difficulties, Noé and Garland were able to harness the full potential of UV cinematography, transforming obstacles into opportunities for creative exploration.

The sensory impact of UV cinematography in *Enter the Void* and *Annihilation* highlights its ability to shape audience perception and engagement. This alignment between UV effects and audience immersion echoes Chorvinsky's analysis of fluorescence as a tool for emotional engagement.[116] In Garland's film, UV lighting visualises

[112] Landau, p. 275.

[113] Cipolla, 2019.

[114] Butler, p. 1124.

[115] Landau, p. 281.

[116] Chorvinsky, p. 47.

the Shimmer's transformative power, evoking awe and unease.[117] The glowing visuals draw viewers into the narrative's exploration of adaptation and identity, amplifying its emotional resonance. The lighthouse sequence, in particular, demonstrates how UV cinematography can create climactic moments that captivate and move audiences. Through their innovative use of UV lighting, *Enter the Void* and *Annihilation* engage audiences on sensory and intellectual levels, demonstrating the power of UV cinematography to enhance cinematic storytelling.

7. Conclusion

UV cinematography in *Enter the Void* and *Annihilation* seamlessly integrates with their thematic and narrative structures, serving as a transformative storytelling device. In *Enter the Void*, Noé uses UV lighting as a visual metaphor for Oscar's psychological disintegration and metaphysical journey. The glowing UV hues turn Tokyo into a hyperreal and fragmented landscape, amplifying the film's exploration of memory, consciousness, and the afterlife. Key scenes, such as Oscar's death and subsequent out-of-body experiences, immerse viewers in his subjective reality, where UV lighting bridges tangible and metaphysical realms. Similarly, in *Annihilation*, Garland employs UV lighting to visualise the Shimmer's mutagenic influence. The glowing patterns on the environment and creatures evolve with the narrative, peaking during the lighthouse sequence. This culmination, marked by Lena's confrontation with the alien entity, uses UV effects to reflect themes of adaptation, identity, and dissolution. In both films, UV lighting enhances narrative coherence and emotional resonance, transforming it into a versatile tool for exploring abstract concepts.

The artistic and technical innovations in UV cinematography showcased by Noé and Garland redefine visual storytelling. In *Enter the Void*, Noé's hybrid approach blends practical UV lighting with digital enhancements. Tokyo's neon, drenched streets, accentuated by UV lighting, sensitive materials, and calibrated lighting, mirror Oscar's fragmented psyche, offering a psychedelic aesthetic that aligns with the film's existential themes. *Annihilation* integrates UV, sensitive paints, and advanced CGI to depict the Shimmer's ethereal landscapes. The

[117] Butler, p. 1127.

visual effects create a seamless interplay between organic and alien elements, immersing viewers in the Shimmer's transformative beauty. Both directors demonstrate that, though technically demanding, UV cinematography offers unmatched potential for creating cohesive and immersive visual languages.

UV cinematography's cultural and ethical dimensions enhance its relevance in contemporary cinema. In *Enter the Void*, the cyberpunk-inspired UV aesthetic reflects urban alienation and technological mediation, turning Tokyo into a metaphor for the protagonist's fractured consciousness. *Annihilation*, by contrast, draws on ecological and psychedelic art traditions. The Shimmer's UV-lit flora and fauna symbolise adaptation and the dissolution of natural boundaries, aligning with environmental themes. While UV cinematography enriches thematic engagement, it also raises ethical questions about sensory manipulation. The intense visual immersion can alienate some viewers, prompting a need to balance innovation and accessibility. Both films navigate these considerations, ensuring that their techniques enhance rather than overwhelm.

The innovative use of UV lighting in these films signals a transformative future for visual storytelling. UV cinematography's ability to depict intangible and abstract concepts positions it as a cornerstone of immersive cinema. As filmmakers push traditional boundaries, UV lighting offers an adaptable medium for visualising narratives that challenge perception and convention. The techniques pioneered by Noé and Garland serve as a blueprint for advancing the art of filmmaking, inspiring future creators to explore UV lighting's potential to amplify narrative depth and emotional impact.

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Table of Figures

Figure 3: Protagonist Linda on a balcony in a UV light scene. Noé, Gaspar. (Director). (2009). *Enter the Void* [Film]. Fidélité Films.

Figure 5: Protagonist Dani appears amongst a floral array. Aster, Ari. (Director). (2019). Midsommar [Film]. A24.