

# **The Spatial Rhythm of Fluid Architecture: A Study on the Design Thinking and Aesthetics Composition of BMW Welt in Munich, Germany**

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## **ABSTRACT**

The Austrian architectural team Coop Himmelb(l)au conveys the fluid meaning of architecture through innovative forms inspired by dynamic cyclones, transforming architecture into a dynamic and engaging narrative system that drives the passion for life and the spatial appeal. The design of BMW Welt embodies the whimsical and imaginative qualities of dynamic architecture, creating a sensorially vibrant aesthetic experience through the design syntax and compositional aesthetics of fluid architecture. This research through the methods of literature review and field investigation to analyze Coop Himmelb(l)au's architectural design methods. Taking Noble Schulz's theory of Genius Loci as the framework and theoretical basis of analysis, it analyzes the composition method and design mode of the architectural design. The research found that BMW Welt designed by Coop Himmelb(l)au has the following compositional characteristics: A. The design method of the rhythm of the fluid architectural space composition; B. The self-evident and pioneering characteristics of the automotive dynamic art venue; C. The innovative design methods and characteristics of the exhibition and interior space; D. The innovative dimension of art and emotional architectural experiments. Through the combination of architecture and mobile space atmosphere, shape the architectural contagious car fluid image and the new spiritual aesthetics experience of mobile life.

**Keywords:** Genius Loci, Suspended architecture, Design thinking, Fluid rhythm, Spiritual aesthetics, Spatial aesthetics.

## **INTRODUCTION**

The postmodern deconstructionist architectural team Coop Himmelb(l)au began to experiment with the compositional grammar of dynamic architecture since the 1980s, creating a new emotional dimension for architecture. The experiment constructs dynamic spatial places,

transcending people's conventional impression of buildings as fixed, static and stable, and opens up more diverse creative dimensions of architecture. The experimental aspects of Coop Himmelb(l)au's architecture cover dynamic, deconstruction and fluid compositional grammar. It takes the speed form in motion as a new pioneering vision for architecture, transforms the ever-changing clouds in the sky into dynamic architecture to explore new perceptual experiences, shape a new fluid spatial image of automobile architecture, and presents a suspended and rotating spatial experience, allowing people to feel the dynamic, magnificent, fluid and rotating spatial rhythm and architectural aesthetics experience in the space. This paper analyzes the design thinking and design aesthetics of BMW Welt in Munich, Germany, through an investigation and discussion of the building designed by Coop Himmelb(l)au. Through the innovative vision of Coop Himmelb(l)au, exploring experimental construction space and develop new design methods. The research investigates and studies the unique development experience of BMW Welt to establish its spatial composition modes and architectural aesthetics development experience. From the development context and composition dimension of BMW Welt's architectural space, interior design, and exhibition design, to explore its innovative mode of space creation experience and establish the influence and inspiration of its spatial form on architectural design. The composition and aesthetic value of BMW Welt building demonstrate a new form of architectural development. With its elegant urban aesthetic landscape, it expands a new mode of spatial aesthetics and presents a new experience place for automotive craftsmanship design aesthetics and mobile life culture.

### STUDY THEORIES AND METHODS

The research through the methods of literature review and field investigation, interprets and analyzes the spatial display design context of BMW Welt in Munich, it explores the thinking modes and formal characteristics of place design. The theory of Genius Loci by Christian Norberg-Schulz serves as the analytical framework and theoretical foundation. The paper dissects the compositional methods of BMW Welt architecture and interior design, and through the inspiration from its design and compositional modes, it explores the development modes and characteristics of the spirit of place.

Christian Norberg-Schulz's Genius Loci theory: German philosopher Edmund Husserl opened the door to epistemology in the era of rationalism from the perspective of phenomenology ontology, and Heidegger further expanded the phenomenological theory of returning to things themselves. Norwegian architectural theorist Christian Norberg-Schulz uses phenomenology as the basis of philosophical thinking and discusses the essence of architecture with the idea of returning to things. He attributes Genius Loci to the core content of architectural phenomenology and reveals the essential relationship between human existence and the creation of architectural space. Place is a meaningful whole that combines natural and artificial environments, a meaningful sense of space that allows people to read messages and meanings. The spirit of place originated from the concept of ancient Rome, expressing that a place has its own unique spirit and characteristics. It not only has the form of an architectural entity, but also has spiritual significance, a meaningful sense of space. The task of architecture is to create meaningful places to help people live. Only when abstract materialized space is transformed into emotional human space can architecture become real architecture. In the design of a building, in addition to considering aspects such as function, structure, economy and appearance, design must also consider people's experience, perception, consciousness and other spiritual aspects. Place theory guides people to explore and discover the beautiful

emotions and spirituality obtained in a specific environment, establishes a method and meaning for constructing an ideal spatial model, and presents a beautiful spatial experience and perception model. Place theory guides people to explore and discover the beautiful spatial themes and spirits in a specific environment, and to create a space with the warmth of life. BMW Welt in Munich, features a spatial context of fluid geometric rhythms, and is rich in the pioneering spirit and compositional qualities of a design venue with a sense of automotive speed. It places people in a spatial context that inspires artistic imagination and experience of automotive craftsmanship, and is rich in inspiration for spatial innovation and the pioneering connotations of mobile architectural space culture.

## **DESIGN THINKING AND AESTHETIC COMPOSITION MODES OF BMW WELT**

### **Design Concept of BMW Welt**

BMW Welt in Germany showcases a rich history and culture of automobiles, conveying the passion and spirit of the automotive industry. The design concept of Coop Himmelb(l)au is to transform the vibrant brand into architectural design language, creating a sensory experience space that allows people to experience the power and speed of automobiles, shaping a unique dynamic tension and sense of speed in the architectural space. The design of BMW Welt is inspired by the swirling motion of cars, generating a hurricane that rises from the ground, with dynamic spatial forms and a rhythmic sense of flow that creates a floating exhibition space, embodying a freely flowing architectural form. The interior of the building includes exhibition hall spaces, a car test drive area, restaurants, and shops, forming a diverse commercial exhibition space. Through poetic and fluid spatial light and shadow, it creates a dynamic and elegant atmosphere, allowing people to feel the flowing poetry of automotive architecture and the rich layers of spatial aesthetics. The use of metallic conical rotating mirrors constructs a suspended architectural body, shaping a new architectural image for the automobile exhibition hall, showcasing the creativity and cultural power of automotive craftsmanship (Figure 1).



**Fig 1: The rotating shape of the metal cone creates an image of speed by which the building levitates.**

The design of Coop Himmelb(l)au draws inspiration from BMW cars, incorporating the fluid speed characteristics of BMW into architectural composition, connection, and translation. It interprets the transformation of fluid architectural landscapes through a flowing cyclone metaphor (Figure 2), presenting an aesthetic spatial context of dynamic speed in automotive driving. By utilizing the rhythmic fluid of architecture, it creates a rhythmic spatial environment

that makes one feel as if they are within the moving space of a flowing cyclone, experiencing the ever-changing, dynamic, and dreamlike scenarios of automotive movement and craftsmanship aesthetics. Through a multi-layered spatial structure, it shapes the relationship between architecture and the external environment, creating a space filled with creative imagination and dynamism, conveying new values and spatial characteristics of BMW's automotive culture and mobile living.



**Fig 2: The spatial aesthetics of flowing cyclones and clouds.**

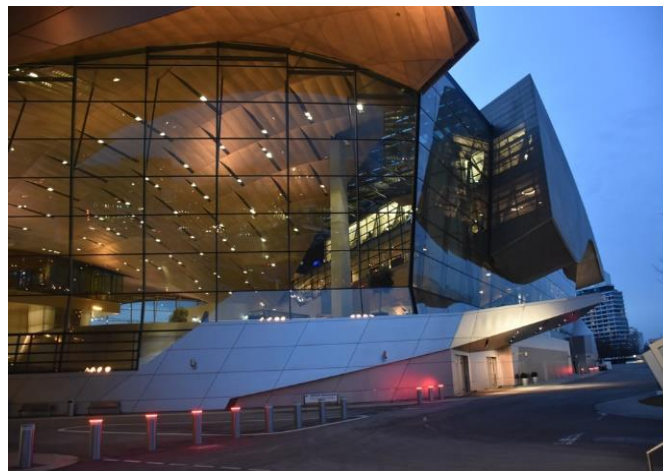
### **Architectural Composition Modes and Aesthetic Characteristics**

BMW Welt challenges the architectural image of gravity with bold, avant-garde dynamic architecture, forming a flowing space aesthetic with dynamic changes and floating changes like cloud cyclones. The rhythmic shape of the rotating cone is used to shape the rich layered volume changes of the metal and construct a space that looks like a suspended cyclone. The grid-like steel structure of the cone-shaped cyclone building (Figure 3) uses cone-shaped structural columns to support the exhibition hall space suspended above, using the image of a free-floating aerial building with a large-span steel structure. The dynamic layers of the interior space are constructed by the bridge and tower spaces. The bridge walkway connects the rich interior space, as if floating in the air, making people feel like they are walking in a three-dimensional multi-layered cloud space. A dynamic spatial image is woven into the flowing architectural structure, and the upper and lower spaces are connected by a linear flowing staircase path, creating a romantic cloud-like spatial level and atmosphere with an aluminum plate metallic feel. The light structure creates a changing aesthetic of flowing clouds. The metal cone serves as a connector between the cloud-shaped roof and the ground structure, presenting the load-bearing support function of the vertical structure and also displaying the dynamic structural aesthetics. The flowing bridge space connects the exhibition space through a three-dimensional streamline path. The dynamic staircase ramp spirals upward linearly to form a structural connection block at the interface between the sky and the earth, creating a romantic and dreamy spatial atmosphere. The dynamic three-dimensional shape of the oblique cutting and folding of the interior structure forms the aesthetics of the interior structure. The special conical structural columns on the outside of the building form a cantilevered roof space structure, allowing the inclined and dynamic building form to soar into the sky, presenting the flowing movement and dynamic sense of the cloud-like building. The building's facade uses reflective metal materials, giving the building a dynamic aesthetic. The wavy curves of the roof are like floating clouds, and the long-span roof space like red clouds creates a new form of

spatial aesthetics that is informal, free, energetic, powerful and beautiful, forming a spatial dialogue between heaven and earth and a flowing spatial composition feature (Figure 4).



**Fig 3: The mesh steel structure form of the cone cyclone architecture.**



**Fig 4: The free and vibrant flowing speed form and aesthetics.**

### **Interior Context and Aesthetic Composition Modes**

BMW Welt features a flowing and grand cyclonic spatial poetry, allowing visitors to experience the beautiful narrative and spatial imagination of automotive driving and mobile living amidst a changing atmosphere of movement speed. This creates a spirit of imaginative creation and spatial tension within the space. The expansive cloud-like interior space immerses visitors in a flowing landscape between heaven and earth, entering into high, medium, and low cloud spaces (Figure 5), where they can wander and appreciate the aesthetic of flowing indoor landscape space. In the indoor flowing sky of celestial clouds, visitors can experience BMW's research and development, innovation, and the aesthetics of mobile living, shaping a new aesthetic image of spatial flow co-construction within the interior. This creates an atmosphere filled with vibrant energy and dynamic speed (Figure 6). In this spatial context, the interior space is layered and composed. The first floor features a large exhibition and sales area showcasing new models from the BMW Group. The second floor is equipped with a test drive center, where visitors can drive along a curved track, and there is also a display area for heavy motorcycles. The overall interior design presents a captivating design context and tension for the exhibition space,



shaping a new design vocabulary of spatial context. With a triangular electric ceiling space, the interior is rich in innovative qualities of display aesthetics, presenting a display context that conveys the sense of speed in vehicle handling (Figure 7).



**Fig 5: An interior flowing landscape with an open cloud space.**



**Fig 6: The aesthetic of flowing interior landscape in high, medium, and low cloud spaces.**

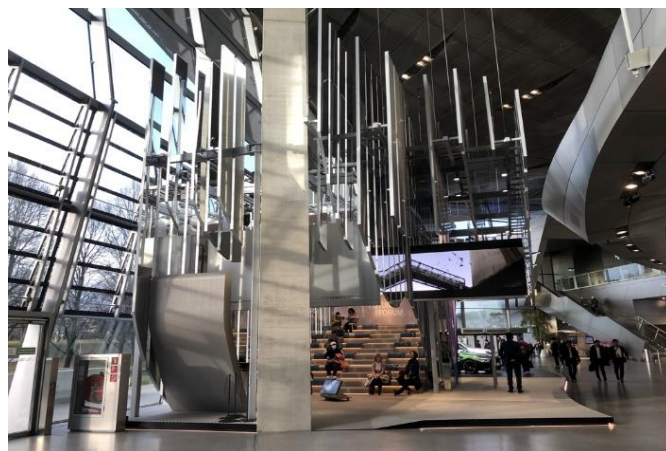


**Fig 7: A ceiling display of triangular electric lighting space.**

The exhibition atmosphere is enhanced with LED lighting, showcasing the colors and light and shadow of technological aesthetics (Figure 8). The aesthetic design of the three-dimensional composition of the wooden grand staircase platform in the visitor rest area (Figure 9), the new multimedia digital technology exhibition aesthetics, and the visual imagery of the curved wall art in the interior create a captivating indoor a a context that immerses visitors in the lifestyle and future atmosphere of automotive mobility, allowing them to feel the enchanting spatial charm and the spirit of the place. The interior evokes a sense of driving freely amidst the sky and clouds, providing an expansive spatial landscape experience (Figure 10). The test drive center on the second floor features a curved driving track for test drives, offering a rounded driving experience space. The three-dimensional flowing indoor space experience enriches the rhythmic experience of the fluid layers of the indoor virtual and real space, shaping a dynamic architectural landscape that allows one to traverse through BMW's development timeline, experiencing the creative energy and flowing poetry of automotive craftsmanship. esthetic atmosphere, expressing BMW's elegant aesthetic experience (Figure 11). The aesthetic design of the indoor ceiling, through the tension created by the linear celestial lighting fixtures, and the suspended linear lights, presents an elegant and fashionable artistic composition. The BMW Welt features a car exhibition space, an experience area, and a place for automotive art research, with a fluid architectural structure covered in silver aluminum panels (Figure 12).



**Fig 8: Display atmosphere combines LED lighting to present technological light and shadow.**



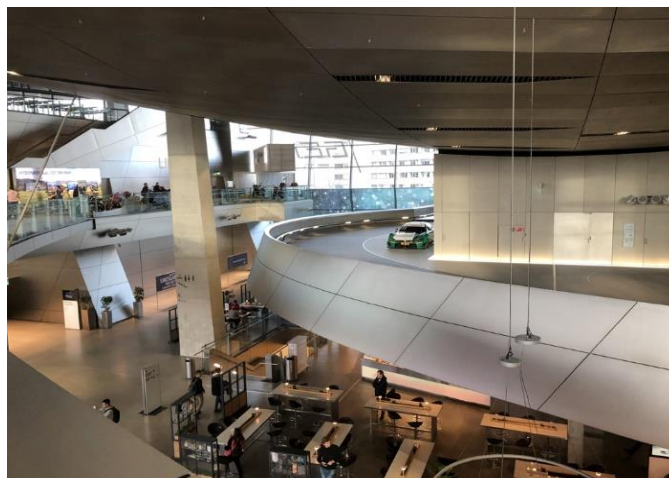
**Fig 9: The aesthetic composition of the wooden grand staircase platform in the visitor rest area.**



**Fig 10: The elegant aesthetic atmosphere and compositional experience of BMW Welt interior.**



**Fig 11: The fluid silver aluminum architectural structure with a driveway.**



**Fig 12: The interior test drive between the fluid cloud and ground.**

### **Dynamic Rhythm Design Approach of BMW Welt**

Coop Himmelb(l)au explores dynamic architectural composition through deconstructionism in the creation of architectural philosophy. They investigate the spatial rhythm of fluid architecture to create new dimensions, establishing a pioneering mode for emotional



architecture. This approach offers new perspectives on the spiritual imagery of architecture and the exploration of value, generating new architectural enjoyment and impact. They create a set of dynamic rhythmic architectural composition logic, utilizing innovative architectural imagery and structures characterized by inclination, flow, and the interplay of solid and void (Figure 13). This leads to the development of a unique design methodology for dynamic architecture, presenting the poetic essence of space and conveying its spiritual significance, allowing the space to express vibrant emotions. The architecture become a living entity, warm and engaging in dialogue with people, enabling them to experience new architectural spatial experiences and innovative compositional syntax. Coop Himmelb(l)au innovatively reflects on the imagery of playful architecture from spiritual, cognitive, and functional perspectives, showcasing new narrative methods for emotional spatial imagery and spatial text. BMW Welt designed by the Coop Himmelb(l)au appears bright and elegant due to its dynamic flowing landscape and internal exhibition design, transforming the lively brand into a design language. It conveys a unique spatial language and semantic context to visitors, showcasing the vocabulary of speed through the arrangement of architectural forms and spatial composition, translating into a sensory spatial experience that embodies the spirit and characteristics of automotive culture. BMW Welt Showroom is equipped with an automobile exhibition space, an experience area, and a place for automobile art research. The flowing building is covered with a silver metal zigzag pavilion. Through a dynamic and flowing architectural landscape, it creates a feeling of traveling through the creative axis of historical time and experiencing the flowing poetry and creative spirit of automobile craftsmanship. The refined, flowing and avant-garde open space scenario allows people to immerse themselves in the life and future space-time atmosphere of the automobile mobile space, and feel the fascinating spatial charm and spiritual characteristics of the place (Figure 14). The flowing architectural cyclone landscape sculptures and the suspended spatial rhythm create a vigorous vitality in the space and a speed aesthetic situation with futuristic suspension characteristics, full of vitality and vigor. The celestial clouds suspended by the hurricane air of heaven and earth connect the entire exhibition space, becoming a spatial narrative and landscape aesthetics of mobile life. At night, the building forms changing red clouds, and the ever-changing spatial aesthetics are created through LED light and shadow.



**Fig 13: Dynamic architectural rhythm of tilt, flow, reality and void.**



**Fig 14: BMW Welt's fascinating spatial create and spirit of place.**

### **CONCLUSION-SPATIAL INNOVATION AND COMPOSITIONAL AESTHETICS OF BMW WELT**

BMW Welt's construction experience demonstrates Coop Himmelb(l)au's mature innovative spirit and construction technology, turning the artistic architectural ideas on paper into concrete and feasible plans, making the building a carrier of flowing space, shaping the BMW automotive industry concept of speed, lightness, grace, fashion and passion, and forming a unique dynamic and separated spatial aesthetic atmosphere. It expresses the romantic and dreamy spatial context of the building, creates a dynamic and flowing rhythm, and uses the avant-garde and flowing hurricane-shaped architectural form to create a new form of spatial aesthetics that is informal, free, energetic, powerful and beautiful. The innovation and development mode of BMW Welt's exhibition space has the following development and composition characteristics: A. The design method of the rhythm of the fluid architectural space composition; B. The self-evident and pioneering characteristics of the automotive dynamic art venue; C. The innovative design methods and characteristics of the exhibition and interior space; D. The innovative dimension of art and emotional architectural experiments. It creates forward-looking design methods and pioneering qualities, make the architecture a fluid rhythm, give the building a dynamic space composition quality, and shape a new spirit of the times.

### **The Design Method of The Rhythm of The Fluid Architectural Space Composition**

How to use space to shape images and appeal and give people a wonderful experience is the core of designers' exploration and thinking. Coop Himmelb(l)au transformed BMW's vivid brand image into vivid architectural language, conveying moving spatial language images to visitors. Through the configuration of buildings and the composition of spaces, the architectural language of speed is reflected, the spatial experience of the senses is transformed, and the brand characteristics of automotive culture are understood. The innovative architectural form of flowing cyclones conveys the fluid connotation of the building, making the building a dynamic and interesting narrative system, driving the vitality and spatial appeal of the building. It shows a new way of writing and discussing dynamic spatial images and spatial texts. In the creation of architectural philosophy, the composition of deconstructivist dynamic volumes presents the fluid rhythm of dynamic architectural space, presents a new thinking and construction mode of sensibility and artistic architecture, provides new aspects of architectural value and exploration, and creates the fun of architecture. Create a set of dynamic rhythmic architectural composition logic, use flowing, virtual and real architectural images, and create a unique new

design method for dynamic architecture. Through the new architectural construction, the poetry is presented, the warmth of the space is presented, and the space has a vivid expression. It is designed to be a living, warm building that communicates with people. When people are in it, they can experience new architectural space experience and innovative compositional grammar, embody the architectural vocabulary of speed, transform the sensory space experience, and understand the brand image and creative characteristics of automotive culture.

### **The Self-Evident and Pioneering Characteristics of The Automotive Dynamic Art Venue**

The spatial image of moving cars inspired Coop Himmelb(l)au's innovative exploration and dynamic spatial experimentation and creation in spatial design. It created and transformed the architectural field space with a sense of car speed, developed the place spirit and characteristics of the building, and let people be infected by the fluid characteristics of car architectural culture and recognize the creative mode and characteristics of architecture. The design of BMW Welt combines the flowing architectural style, dynamically composing the architectural volumes between three-dimensional volumes. The building changes in gradient form, creating the flowing Mercedes-Benz style of floating architecture, and constructing the self-evident and pioneering characteristics of the automotive dynamic art venue. It is characterized by a special mood conveyed to the audience through space and senses. Visitors can experience the BMW brand characteristics of driving and speed through sensory experience in the architectural space, leaving a deep impression. The dynamic sculpture form and interior display design method of BMW Welt give the building a diverse and layered appearance rhythm when observed from different viewpoints, forming the environmental image and form of a dynamic building, shaping the dynamic architectural form of cars galloping, and embodying the design thinking, imagery and systematic new composition methods of dynamic buildings.

### **The Innovative Design Methods and Characteristics of The Exhibition and Interior Space**

The experience of the entire spatial exhibition is a journey through time and space created by the history of BMW's development. Experience the spatial narrative and experience of the automobile and art crafts tour route, be amazed by the rich creativity of automobile culture, and show the bold and innovative creative style of BMW automobile culture. The long-span space body like red clouds forms a large-span dialogue between heaven and earth and a flowing spatial characteristic in the interior, creating a new form of interior space aesthetics that is informal, full of freedom, vitality, strength and beauty. The spacious interior space allows you to enter the flowing clouds and cyclones between heaven and earth. You can wander in the cloud-like interior space and feel the flowing landscape. In the high, medium and low three-dimensional cloud-like space levels, people can experience BMW's research and development, innovation, and mobile life aesthetics. The interior space creates a new aesthetic image of spatial fluid and co-construction, and creates a vibrant and moving atmosphere indoors. The indoor display space on the 1F is very distinctive. The spatial scenario of the car display, with the dazzling ceiling space scenario of the triangular electric car, presents the sense of speed of the car driving, and combines with LED display lights to present the fashionable colors and light and shadow of technological aesthetics. The new multimedia digital technology exhibition aesthetics and the visual image of the artistic arcs on the interior facades create a moving interior aesthetic atmosphere, demonstrating BMW's elegant aesthetic capabilities. At the sales center on the 2nd floor, you can test drive the car along the curved driveway. There is also a heavy motorcycle display area for test rides. The interior space design presents the moving design context and tension of the indoor exhibition space. The overall interior space has an

elegant and flowing atmosphere, creating an artistic floating island exhibition space atmosphere with a romantic tension. You can be immersed in a new space-time atmosphere of the pioneering culture of the history and future of automobile fashion, feel the creativity and humanistic spirit of automobile craftsmanship, and capture the fascinating charm of space and characteristics of the place. The deconstructed architecture, interior space and exhibition rhythm present a new elegance and rhythmic fashion expression of the space.

### **The Innovative Dimension of Art and Emotional Architectural Experiments**

The BMW Welt has the artistic emotion and imaginative interest of dynamic architecture, creating a sensory and dynamic aesthetic experience. Through the poetic and flowing atmospheric space and place context, people are immersed in this space and feel the innovative context and characteristics of automotive architectural culture. In the creation of architectural philosophy, Coop Himmelb(l)au presented a new rhythm of architecture from the composition of deconstructivism dynamic volumes, combined rational and artistic architectural sensibility, explored new aspects of architecture, and created an interesting design language. With a set of dynamic architectural flow rhythm composition logic, using the architectural images and structures of flow, geometry, reality and illusion, a new design method for dynamic and elegant architecture is created. Through the new architectural poetry, the warmth of space is presented, and the space has vivid emotional dimensions and expressions, which can arouse people's perception and resonance. It is a living, warm building that communicates with people, allowing people to experience new architectural space experiences and innovative compositional grammar when they are in it. The creation and design exploration of Coop Himmelb(l)au has carried out innovative thinking on the image of dynamic architecture from the spiritual, ideological and functional perspectives, expressing the moving spatial image of emotional architecture and the new writing and discourse method of spatial text, constructing new design contexts and languages. In the dynamic spatial rhythm of emotional architecture, feel the speed of architectural fluid and experience the poetry of fluid. People can be infected and experience the creativity and inspiration of architectural contexts in the flowing light and shadow of the exhibition hall, understand the communication and cleansing effect of automobile craftsmanship aesthetics on people's spiritual level, shaping new innovative aspects and spiritual appeal of artistic life, enhance and establish moving sensory aesthetic experience, and open up rich spatial levels and pioneering experience.

### **References**

- [1] Charles Landry, *The Creative City: A toolkit for urban innovators*, London, Earthscan, 2000.
- [2] Cosgrove Denis E, *Social Formation and Symbolic Landscap*, Madison, University of Wisconsin Press, 1998.
- [3] Donald Norman, *Emotional Design: Why we love (or hate) everyday things*, New York, Basic Books, 2004.
- [4] Gaddis John Lewis, *Landscape of History: How Historians Map the Past*, Oxford, Oxford University Press, 2004.
- [5] Jencks Charles, *what is post-modernism*, London, Academy Editions, 1989.
- [6] Kenneth Frampton, *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and twentieth Century Architecture*, Massachusetts, The MIT Press, 1995.
- [7] Lisa Iwamoto, *Digital Fabrications: Architectural and Material Techniques*, Princeton Architectural Press, 2009.
- [8] Kevin Lynch, *The Image of the City*, Boston, The MIT Press, 1985.



- [9] Norberg-Schulz, Christian, *Genius Loci: Towards a Phenomenology of Architecture*, New York, Rizzoli, 1980.
- [10] Nathan Shedroff, *Experience Design*, Indiana, New Riders Publishing, 2001.
- [11] Peter Hall, *Cities in Civilisation: culture, innovation and urban order*, London, Weidenfeld, 1998.
- [12] Terence Love, *Philosophy of design: a meta-theoretical structure for design theory*, Design Studies, Vol.21, No.3, 2000.