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### **Space-Time in the Interwar Avantgarde**

The dissertation project explores space-time as a phenomenon in the field of artistic and art-theoretical debate in the avant-garde of the interwar period, paying special attention to the practice of art in various media. The focus is on the manifold efforts to overcome the historically grown - and modernization-based - division between art and natural science.

In art history, questions about the space have a very long tradition. Time, too, has increasingly been the subject of art historical research, especially since the middle of the 20th century.

However, what has not yet been sufficiently investigated are the artistic strategies of uniting space and time in artworks in different media – when space and time are mutually depend on each other, so space can only be experienced in its temporality, and time can only be experienced within space, so art is constituted in a dynamic, temporal reality of space.

Space-time is a term that has its origins in modern physics. Conceptually, at the beginning of the twentieth century it was constituted above all by Albert Einstein's theory of relativity and the mathematics of Hermann Minkowski. The peculiar human perception makes space and time appear as two different concepts because time (according to classical physics) primarily combines linearity and causality, whereas space appears static in its three dimensions.

However, in events of velocities close to the speed of light, the phenomenon of the mutual condition of space and time of that very event is revealed. Space and time are interdependent and such events can only be described in a four-dimensional space-time continuum. In this continuum, space is no longer a rigid three-dimensional quantity and time is no longer steady, space and time are no longer absolute, but are mutable and behave relative to the state of motion of the observer (length contraction, time dilation).

Although the consequences of the theory of relativity, the concept of four-dimensional space-time, are not perceptible to the naked eye, it is surprising that space-time as a term has entered the vocabulary of art history. However, it is not only in art historic research that one or the other work is often attested a spatio-temporal effect. But artists themselves also use the term as a narrative. But so far a deep art historical exploration of this term is missing. What is that, the space-time in art?

Of course, space-time cannot mean the same in the concepts of art and of physics. While physical or mathematical space-time as a concept has emerged in special formal systems - in the mathematical formula, in four-dimensional geometries, and in the discourse medium of language - the art of the inter-war avant-garde has a much wider media spectrum to approach this phenomenon of space-time as a new artistic field.

Some avant-garde artists developed dynamic art concepts, often accompanied by art-theoretical writings, that would give expression to this new spatio-temporal reality. Art had such an ideational content, based on a new conception of space, the integration of time and a mutable form. It is striking that light, in particular, is important as a medium for these artistic endeavors. It also shows that the artworks, that have emerged from a space-time problematization, are usually coupled to processuality: Sometimes it is a complex process of media transfer to effectuate space-time notions, sometimes it is a special process of perception that evokes space-time experience.

The study will focus on the various manifestations of spatio-temporal art and examine the underlying conceptual principles. In addition, the relationship of artistic space-time concepts to scientific theories will be examined.

It is also an aim of the dissertation project to provide a starting point for renegotiating the epistemes of the art of the avant-garde beyond the investigations of artistic space-time concepts and their entanglements with contemporary natural sciences. What can spatio-temporal art convey that the natural sciences committed to the laws of nature could not achieve with their specific discursive methods?