

Thesis of DLA Dissertation

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THE EARLY HISTORY OF ELECTRONIC
MUSIC AT WDR STUDIO IN COLOGNE

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I. Research background

One of the new musical trends to emerge in the second half of the twentieth century was electronic music, among whose most influential branches was that associated with the Electronic Music Studio of Cologne Radio (WDR), founded in 1951. The Cologne School is widely identified primarily with compositions rigid in structure, underpinned by formal principles. In 1991, I spent six months in postgraduate studies at the Sonology Institute of the Royal Conservatoire in The Hague. In the courses of Dr. Konrad Boehmer, then director of the Institute, I was able to encounter for the first time the as yet unreleased audio recordings made in the earliest period of the Studio. Even then, I was struck by the desire to know more, and I was full of questions about how the entire activity of the WDR Electronic Studio could be integrated into the main currents of twentieth-century European and global music. Who are the composers, what are the musical works, that have created new forms of expression by extending and going beyond the intellectual legacy of the composers of the Second Viennese School (primarily Schoenberg and

Webern) and the principles of dodecaphony? Was the path logical, was the process that led to the birth of this peculiarly Cologne branch of *electronische Musik* something that can be apprehended? What thinking patterns link WDR's earliest experimental works to the works of the Studio's later "great" era? How is the transformation of views on composition and music related to the rapid development of science and technology and interdisciplinary thinking after the Second World War? How was all this helped by the revival of German art life after the war, which, breaking with the Nazi past of "degenerate" art, could start anew with a clean slate. Since then, most of the early compositions made in the Studio have been released, and having continuously monitored them since the 1990s, I have incorporated them into my university teaching practice. In writing this dissertation, I was glad to have the opportunity to frame my knowledge within a larger system, hoping also to find the missing link, the "Moment musical", that led from dodecaphony to a state where all musical processes are determined.

II. Research sources

Research into the early activities of WDR Studio in Cologne began in the years after 2000. Since almost no scores or technical scripts were written for the first compositions created with magnetic tape (notation approach has changed after Stockhausen), for musical analysis it was indispensable that audio recordings be extant. In 2005, the first electronic compositions of the early period of the Studio were released on CD by Konrad Boehmer in the Dutch BV Haast's *Acousmatrix* series. This was followed in 2008 by Elena Ungeheuer's selection in the series *Musik in Deutschland 1950–2000*, in which the earliest compositions for magnetic tape from the Cologne Radio Archive can be found, published by Deutscher Musikrat. Elena Ungeheuer, an expert on post-World War II modern German music, was researching sources already in the 1990s. In 1992, through Schott she published, with CD supplements, a volume of sources processing the intellectual legacy of physicist and research engineer Dr. Werner Meyer-Eppler, one of the founders of

the Cologne Electronic Studio. The latter proved to be of decisive importance in my own research.

Using audio materials that gradually emerged from the depths of the archives, I was able to start my research, and it was predominantly these audio sources that I relied on. Since my examination of the thesis topic was conducted not in isolation from the general processes of European music, certain accounts of music history and music theory proved necessary. For the retrospective analyses, I worked from sheet music editions available to the general public, but I made transcriptions of these too. Of course, the relevant analyses of such dedicated and renowned researchers of the post-war musical periods such as Martin Iddon and Jennifer Iverson were also of assistance to me. Mention should also be made of the inspiring works by the musicologists Richard Toop, Michael Kurtz, and Helmut Kirchmeyer, which for me served primarily as a basis for approaching the oeuvres of Karlheinz Stockhausen and Herbert Eimert.

III. Research methods

No sketches, notated scores, or scripts of the initial forms of electronic music recorded on tape are available. Therefore, I first had to make tangible, clear, existing transcriptions of the analyzed works, which could be formally referenced. The sonogram, a tool used in digital signal processing and computer sound analysis, proved to be excellent for this purpose. The sonogram is based on the principle of what is known as the Fourier transform, and can display the full depth of the audio spectrum of the musical material under examination, at the desired magnification and resolution. The vertical axis shows the frequency, that is, the pitch, and the horizontal shows time. Its advantage over traditional notation is that it not only represents discrete sounds, but also depicts their entire sound domain, displaying the intensity of each cluster of sonic structures. The disadvantage is that it is possible to read into it things that are not actually present. Thus it was very important for me to rely primarily on the auditory experience for the analyses, with the sonogram serving only as a feedback and reference point for the accurate

observation of the musical processes and structural units. Where the nature of the musical material required, I also made a traditional musical score of certain sections. The most pleasing and enjoyable part of my dissertation was the preparation of these transcriptions and sonograms, which revealed the inner world of these unusual sounds. With the help of sonograms and the actual auditory experience, it was possible to discern certain recurrent principles, conclusions regarding form could be drawn, and creative processes could be seen.

IV. Results

Using sonogram and sheet music examples, I demonstrated that the compositions of the early period of the Studio were made using Meyer-Eppler: *Audio Tapes*. I managed to locate and demonstrate the point of transition in which serialism, the post-World War II method of composing, and electronic music came together in the field of sound synthesis. As a result, a series of masterpieces was created at the WDR Studio in Cologne; Stockhausen's art developed on the intellectual foundation of the works

of Schoenberg, Webern, Messiaen and Goeyvaerts. In the closing chapter, I presented a summary based on audio examples from Herbert Eimert's lecture *Einführung in die Elektronische Musik*, accompanied by sonograms. I also mapped all the compositions released during the first year of the WDR Studio in Cologne using sonograms – an achievement unique worldwide at the time the thesis was submitted. I consider these sonograms as a starting point, which can be further expanded, developed, and perfected in the future.

V. Activity related to the topic of the thesis

As a lecturer in the subjects of *History and Literature of Electronic Music* at the Liszt Ferenc University of Music, and *Classical Music Theory* in the Jazz Department.

Four lectures in the Library of Budapest Music Center:
13 December 2024 Beginnings of WDR Studio Cologne
21 February 2025 Path to Serialism: from Bach to Webern
09 May 2025 System of Musical Parameters
26 September 2025 Sound Synthesis and Serialism