Introduction

Prague, October 1913. Oskar Kraus, an associate professor of philosophy at the German University, sends alarming letters to Ernst Gehrcke, a physicist at the Reich Institute of Physics and Technology in Berlin:

> People are suffering from extreme fatigue, and an irritability that is due not least to the absurd theories of the relativists. I have a burning desire to see the *source of error* revealed for all of the absurdities that you yourself, honored sir, have accurately characterized. I also see that you have already revealed internal contradictions and absurd consequences multiple times. But where is the *source of error*? Because despite my calculation errors, I am still able to recognize the fact that the theory of relativity is false.[1]

Kraus excuses himself for literally bombarding Gehrcke with letters in the span of only a few days, in which one letter often revokes the statements made in the preceding one, but he confesses in his despair, "[I] would not know […] anyone else but you who as a specialist would not reject the intervention of a philosopher from the start."[2] Oskar Kraus was not an isolated case. A large number of people who were just as disturbed – including some philosophers and physicists, but many more scientific laypersons – turned to Gehrcke, who had taken a position early on as an opponent of the theory of relativity. Gehrcke's papers include a large number of letters whose authors critically discuss modern physics, which, in addition to the content of the correspondence itself, is also expressed in the pamphlets against the theory of relativity that are often enclosed.[3] Two things stand out about these pamphlets and

[1] Kraus to Gehrcke, October 11, 1913, GN 72-A-2. In the German original of this book, spelling, punctuation, and emphases in the source texts were left as in the original. In the translation, as in the original, emphases are uniformly shown in italics. Comments and supplements are shown in square brackets.
[2] Kraus to Gehrcke, October 12, 1913, GN 72-A-3.
[3] For a quantitative overview of the publications on the theory of relativity in the German-speaking area, see Goenner, Hubert. (1992). The reception of the theory of relativity in Germany as reflected by books published between 1908 and 1945. In *Studies in the History of General Relativity*, ed. Jean Eisenstaed and Anne J. Kox. Boston [*et al*.] (Einstein Studies 3), 15–38.

their accompanying correspondence: first, the vehemence and the fundamental approach that was used in discussing the theory of relativity, and second, the vigor with which the authors – physicians and lawyers, but above all engineers, that is, citizens pursuing successful careers who had never before been heard of in scientific circles – pointed out the scientific nature of their refutation of the theory of relativity. This fact allows us to derive the following three central questions:

- Why did a highly abstract theory such as the theory of relativity, which was not directly relevant to everyday life, provoke such an intense reaction in many scientific laypeople?
- What arguments did they raise against modern physics? Which scientific concepts and knowledge were appealed to?
- Why did an academically respected physicist such as Ernst Gehrcke allow himself to become involved with this non-academic opposition to the theory of relativity?

In this book, I would like to provide answers to these questions and, by doing so, focus on aspects of the controversy surrounding the theory of relativity that have received little attention until now.

The current status of research

The controversial reception of the theory of relativity in the public sphere of the 1920s is a topic that touches on many areas and is thus mentioned correspondingly often in the secondary literature. The spectrum of focus areas already discussed is broad, ranging from the question of the possibilities and limits of popular communication of the theory of relativity,[4] through the adaptation of the theory of relativity in art and literature or the relationships between modern physics and modern art,[5] to the political attacks, particularly nationalistic and anti-Semitically motivated attacks on the theory of relativity as "Jewish physics" and on Einstein as a person.[6]

[4] Cf. particularly the differentiation among "primary literature" down to "quaternary literature" in Hentschel, Klaus. (1990). *Interpretationen und Fehlinterpretationen der speziellen und der allgemeinen Relativitätstheorie durch Zeitgenossen Albert Einsteins [Interpretations and Misinterpretations of the Special and General Theory of Relativity by Albert Einstein's Contemporaries]*. Basel [*et al.*], pp. 55ff.

[5] Cf. particularly Donley, Carol C. and Friedman, Alan J. (1985). *Einstein as Myth and Muse*. Cambridge [*et al.*]; Könneker, Carsten. (2001). *Auflösung der Natur, Auflösung der Geschichte. Moderner Roman und NS-›Weltanschauung‹ im Zeichen der theoretischen Physik [Dissolving Nature, Dissolving History. The Modern Novel and the National Socialist 'World View' Under the Sign of Theoretical Physics]*. Stuttgart/Weimar; Miller, Arthur I. (2001). *Einstein, Picasso. Space, Time, and the Beauty that Causes Havoc*. New York, NY.

[6] Cf. Goenner, Hubert. (1993a). The reaction to relativity theory I: The anti-Einstein campaign in Germany in 1920. *Science in Context*, No. 6, 107–13; Hermann, Armin. (1994). *Einstein: der Weltweise und sein Jahrhundert. Eine Biographie [Einstein: The Wise Man of the World and his Century. A Biography]*. Munich [*et al.*], pp. 238ff.; Rowe, David. (2002). Editorial Note: Einstein's encounters with German anti-relativists. In *The Collected Papers of Albert Einstein*, Vol. 7: *The Berlin Years: Writings, 1918–1921*, ed. Michel Janssen *et al.* (2002a). Princeton,

The public criticism by physicists[7] and philosophers[8] was also investigated as part of the public controversy[9] about the theory of relativity.

In the biographically oriented Einstein research, as well as Einstein research focusing on cultural and political contexts, Einstein's opponents of the 1920s, that is, those people who rejected either the special or the general theory of relativity (or both), usually appear in connection with a few spectacular events. Attention has focused above all on the public series of anti-Einstein events organized by the anti-Semitic agitator Paul Weyland. Along with Weyland himself, Ernst Gehrcke also participated as a speaker at the opening event on August 24, 1920, at the Berlin Philharmonic.[10] The discussion between Einstein and Nobel Prize winner Philipp Lenard, possibly the best-known of Einstein's opponents, at the annual meeting of the Society of German Natural Scientists and Physicians (GDNÄ) in Bad Nauheim in fall of the same year, has attracted just as much attention.[11] The public protest by

101–13. On "Jewish physics," cf. particularly Beyerchen, Alan D. (1977). *Scientists Under Hitler: Politics and the Physics Community in the Third Reich*, New Haven, and Litten, Freddy. (2000). *Mechanik und Antisemitismus. Wilhelm Müller (1880–1968) [Mechanics and Anti-Semitism. Wilhelm Müller (1880–1968)]*. Munich.

[7] Cf. this chapter, Note 6, as well as Hentschel, 1990; Kleinert, Andreas. (2005). Philipp Lenard and Johannes Stark: Two Nobel laureates against Einstein. In *Albert Einstein. Chief Engineer of the Universe*, ed. Jürgen Renn (2005a), 3 vols. Weinheim, Vol. 1: *One Hundred Authors for Einstein*, 226–29; Schönbeck, Charlotte. (2000). *Albert Einstein und Philipp Lenard: Antipoden im Spannungsfeld von Physik und Zeitgeschichte [Albert Einstein und Philipp Lenard: Adversaries in the Conflict of Physics and Contemporary History]*. Berlin [*et al*.] (Schriften der Mathematisch-Naturwissenschaftlichen Klasse der Heidelberger Akademie der Wissenschaften No. 8); Rowe, David. (2006). Einstein's allies and enemies: Debating relativity in Germany, 1916–1920. In *Interactions: Mathematics, Physics and Philosophy, 1860–1930*, ed. Vincent F. Hendricks *et al*. Dordrecht (Boston Studies in the Philosophy of Science **251**), 231–80.

[8] Cf. Hentschel 1990, for a comprehensive treatment.

[9] The reception of the theory of relativity that occurred primarily within a scientific community is not the topic of this study. On that topic, cf. particularly Staley, Richard (2008b). *Einstein's Generation: The Origins of the Relativity Revolution*. Chicago and the essays in Glick, Thomas F. (ed.). (1987). *The Comparative Reception of Relativity*. Dordrecht [*et al*.] (Boston Studies in the Philosophy of Science **103**). On the reception of the general theory of relativity, cf. particularly the contributions in Howard, Don and Stachel, John (eds.). (1989). *Einstein and the History of General Relativity*. Boston [*et al*.] (Einstein Studies **1**) and in Eisenstaed, Jean and Kox, Anne (eds.). (1988). *Studies in the History of General Relativity*. Boston [*et al*.] (Einstein Studies **3**). On the reception among astronomers, cf. Crelinsten, Jeffrey. (2006). *Einstein's Jury: The Race to Test Relativity*. Princeton [*et al*.].

[10] Cf. van Dongen, Jeroen. (2007). Reactionaries and Einstein's fame: "German Scientists for the Preservation of Pure Science," relativity and the Bad Nauheim conference. *Physics in Perspective*, **9**, 212–30; Fölsing, Albrecht. (1997). *Albert Einstein. A Biography*. New York, NY, 460–65; Goenner 1993a; ibid. (2005). *Einstein in Berlin, 1914–1933*. Munich, 179–85; Grundmann, Siegfried. (1967). Das moralische Antlitz der Anti-Einstein-Liga [The moral countenance of the Anti-Einstein-League]. *Wissenschaftliche Zeitschrift der TU Dresden [Scientific Journal of the Technical University of Dresden]*, **16**(5), 1623–26; ibid. (2005). *The Einstein Dossiers: Science and Politics – Einstein's Berlin Period*. Berlin [*et al*.], 98–106; Hermann, Armin. (1977). Der Kampf um die Relativitätstheorie [The battle about the theory of relativity]. *Bild der Wissenschaft* 109–16; Hermann 1994, 240–47; Kleinert, Andreas. (1993). Paul Weyland, der Berliner Einstein-Töter [Paul Weyland, the Einstein Killer of Berlin]. In *Naturwissenschaft und Technik in der Geschichte. 25 Jahre Lehrstuhl für Geschichte der Naturwissenschaft und Technik am Historischen Institut der Universität Stuttgart [Science and Technology in History. 25 Years of a Chair for the History of Science and Technology at the Historical Institute of the University of Stuttgart]*, ed. Helmuth Albrecht. Stuttgart, 198–232; Rowe 1993, pp. 105–8; Rowe 2006, pp. 251–57.

[11] Cf. van Dongen 2007; Fölsing 1997, pp. 466–68; Goenner 2005, pp. 185–88; Hermann 1994, pp. 247–49; Kleinert, Andreas and Schönbeck, Charlotte. (1978). Lenard und Einstein. Ihr Briefwechsel und ihr Verhältnis vor der Nauheimer Diskussion von 1920 [Lenard and Einstein. Their correspondence and their relationship before the Nauheim discussion of 1920]. *Gesnerus*, **35**(3–4), 318–33; Rowe 1993, pp. 108–11; Rowe 2006, pp. 257–63; Schönbeck 2000.

Einstein's opponents at the annual meeting of the GDNÄ in Leipzig in 1922,[12] and the appearance of the collection *100 Autoren gegen Einstein [100 Authors Against Einstein]* in 1931,[13] have also been investigated.

The research to date on the opponents of the theory of relativity is characterized by a strong focus on individual protagonists, particularly Lenard, Stark, Gehrcke, and Weyland, and specific events, particularly the presentations at the Philharmonic and the dispute in Bad Nauheim. In addition, this phenomenon is discussed primarily from the perspective of what it meant for Einstein to be confronted with attacks on his science and on himself as a person. In this book, however, the central question is what it meant for the persons who classified themselves as Einstein's opponents to be confronted with the theory of relativity. A new perspective arises when the countermovement to the theory of relativity is not investigated as a movement that originated in the existence of the theory of relativity or due to Einstein. Instead, a broader historical framework is opened up that takes the social contexts of the opponents of modern physics into account and deals with the dynamics of the dispute about the theory of relativity.

Instead of approaching Einstein's opponents with fixed categories and assigning their motives and arguments to science-related (content-based) categories on the one hand and non-science-related (anti-Semitic, nationalistic) categories on the other, as is particularly the case in works by Hubert Goenner and Klaus Hentschel,[14] the analysis presented here intends to make comprehensible the manner in which the dispute about the content of science includes genuine political dimensions and is subject to processes of politicization that develop their own momentum. The significance of the presentations at the Philharmonic and the discussion in Bad Nauheim, which are practically synonymous with the opposition to the theory of relativity in previous Einstein research, becomes relative in light of the reconstruction of a broader and longer-lasting countermovement that even took on institutionalized forms. The existence of this institutionalized network of Einstein opponents has been overlooked by the Einstein research until now. This is due not only to the availability of sources, which has only improved in the past few years (cf. pp. 9ff.), but also particularly to the

[12] Cf. Fölsing 1997, pp. 523–24; Goenner 2005, pp. 188–93; Hermann 1994, pp. 279–83; Wazeck, Milena. (2005). 'Einstein on the murder list!' The attacks on Einstein and the theory of relativity in 1922. In Renn 2005a, 222–25.

[13] Cf. particularly Goenner, Hubert. (1993b). The reaction to relativity theory in Germany III: "A hundred authors against Einstein." In *The Attraction of Gravitation: New Studies in the History of General Relativity*, ed. John Earman, Michel Janssen, and John Norton. Boston [*et al*.] (Einstein Studies **5**), 248–73.

[14] Cf. Hentschel 1990, pp. 74ff.; Goenner 1993a; Goenner 1993b; Rowe 2006, pp. 263ff. is also critical of this approach.

one-sided orientation of the research about the opponents of the theory of relativity that has just been outlined.

Investigations of the controversial reception of the theory of relativity always raise the question of why the theory of relativity was able to achieve a public effect and polarization in the Weimar Republic that was unknown for a scientific theory up until then. Many positions on this issue focus on different areas falling in the continuum between the view that Einstein was a colorful personality, politically polarizing, and a media product, and the finding that the confirmation of the theory of relativity at the 1919 solar eclipse was the starting gun for reception of the theory of relativity in the public that developed its own momentum.[15] However, the "public" in these cases is usually a diffuse public about which little is known.

Newer work, on the other hand, emphasizes the fact that explanations of the unique popularity of Einstein and the theory of relativity must include multiple factors: from Einstein's personality and political involvement to the fascination with a new "great theory" and its incompatibility with everyday concepts of space and time, from the ideological environment and the specific cultural and political contexts of the Weimar Republic to the role of the popular press, which had just come into being.[16]

In *Einstein and Our World*[17], David Cassidy emphasizes the heterogeneity of the public response to the theory of relativity, pointing out that the reception of the theory of relativity in the public was both conditioned by the incompatibility of modern physics with the understanding of science that was widespread in the population, and related to the role of physics as a substitute world view in the post-war period. In *Einstein and Our World*, Cassidy covers a broad range of reception types and therefore only deals marginally with the adverse public reception that is the focus of this book.

In his book *Auflösung der Natur, Auflösung der Geschichte [Dissolving Nature, Dissolving History]*, Carsten Könneker has situated the Einstein controversy in the cultural context of the Weimar Republic and particularly demonstrated the connection with a broader debate about relativity linked to Spengler and Nietzsche.[18]

[15] Cf. e.g. Elton, Lewis. (1986). Einstein, general relativity, and the German press, 1919–1920. *Isis*, **77**, 95–103; Fischer, Ernst Peter. (1996). *Einstein. Ein Genie und sein überfordertes Publikum [Einstein. A Genius and his Overburdened Public]*. Berlin [*et al.*]; Fölsing 1997; Pais, Abraham. (1994). *Einstein lived here*. Oxford [*et al.*].

[16] Pais 1994, pp. 194f. also calls for this, although he resorts primarily to Einstein's (political) biography and anecdotes about Einstein.

[17] Cassidy, David. (2004). *Einstein and Our World*, 2nd edn. New York, particularly pp. 93–110.

[18] Paul Forman had already asserted a connection between the cultural environment and modern physics with regard to the development of quantum mechanics. Cf. Forman, Paul. (1971). Weimar culture, causality, and quantum theory: adaption by German physicists and mathematicians to a hostile environment. *Historical Studies in the Physical Sciences*, **3**, 1–115 and ibid. (1984). Kausalität, Anschaulichkeit and Individualität: How cultural

Könneker's goal is "to include the development of modern physics and its extensive tendentious vulgarization in the debate about the background of the origin and rise of National Socialism."[19] This approach leads Könneker to conclusions and assignments of guilt that must be evaluated critically; for instance in his concluding remarks on "the guilt of physics": "With his contributions to the development of modern physics, and as a highly controversial person politically, Einstein had made a decisive contribution to the increasing hardening of the ideological fronts in the Weimar Republic or to the fact that they developed at all in the form observed."[20]

In contrast, the assumption in this book is that the debate about the theory of relativity originated neither in the development of modern physics nor in Einstein himself and his political statements.[21] I rather argue that the ideological use and politicization of the theory of relativity must be interpreted instead as a phenomenon of specific sociopolitical and epistemological contexts of the long turn of the century.

The popular objections to the theory of relativity have been examined particularly by Goenner[22], and most extensively by Hentschel. In his comprehensive work on the controversial reception of the theory of relativity, *Interpretationen und Fehlinterpretationen der speziellen und der allgemeinen Relativitätstheorie durch Zeitgenossen Albert Einsteins [Interpretations and Misinterpretations of the Special and General Theory of Relativity by Albert Einstein's Contemporaries]*,[23] Hentschel investigates the popular literature from the aspect of (successful) popularization on the one hand and vulgarization (leading to misunderstandings) on the other. Using this perspective, he attributes the popular content-based objections in the opposing publications to incorrect interpretations, arrogance, or inadequate examination of the serious popular literature. However, Hentschel's primary interest is not the contexts of popular criticism, but rather the philosophical reception of the theory of relativity and the development of a standard for the adequacy of philosophical interpretations of the theory of relativity. Therefore, it is only in passing that he takes note of a phenomenon

values prescribed the character and lessons ascribed to quantum mechanics. In Nico Stehr and Volker Meja (eds.). *Society and Knowledge: Contemporary Perspectives in the Sociology of Knowledge*. New Brunswick, 333–47.

[19] Könneker 2001, p. 6. [20] Ibid., p. 359.

[21] Cf. Könneker's contrasting assessment: "The reason that the tone of the discussion between advocates and opponents […] became increasingly aggravated was due to the public appearances by Einstein, who made no secret of his sympathies for pacifists, leftists, and Zionists, and also to the vulgarized content of the theory itself." Ibid., p. 3. Here, however, Könneker does not ask the decisive question of the political and social context that would make it possible for the political convictions of a scientist such as Einstein to achieve this public reaction in any way.

[22] Goenner 1993a. [23] Hentschel 1990.

that is placed in the center of my work: "What is actually astonishing about the innumerable 'elementary refutations' of the T[heory of]R[elativity] in the popular literature about the T[heory of]R[elativity] in the Twenties is the insolence with which lesser and least intellects meddle in the affairs of the best mathematicians of their time."[24]

This raises the question of where this self-assurance came from, which appears as "insolence" to a modern historian of science. "Boundless overestimation of ability"[25] as a motivation for this group of people is unsatisfactory as an explanation for a historical phenomenon. Or does this actually represent a pathological development that would rather be the domain of psychology than the history of science? There are good reasons to deny this. Instead, the fact that the examination of the theory of relativity in the pamphlets took place based on a level of knowledge that was usually below the level of a graduate physicist and certainly below the level of a mathematically trained theoretical physicist – which often resulted in quite unconventional interpretations of the theory of relativity – indicates that it is necessary to deal with the knowledge content and conceptions of science of these scientific laypeople and to place oneself at the level of "what people know."[26] Here, the concept of "what people know" does not refer to what is called common sense,[27] but rather "a whole series of knowledges that have been disqualified as nonconceptual knowledges, as insufficiently elaborated knowledges: naive knowledges, hierarchically inferior knowledges, knowledges that are below the required level of erudition or scientificity."[28]

This book will show that the theory of relativity was fought so vehemently because it threatened other bodies of knowledge or was perceived as such a threat. One can describe the confrontation between incompatible bodies of knowledge existing in parallel as a conflict of paradigms or as a conflict resulting from contradictory styles of thinking.[29] The crucial point is that conflicts of this type are of a fundamental nature and therefore cannot be resolved within the scope of an established science – after all, what is the "right" science and what is the "true" knowledge are precisely what is being disputed. This book shows that these conflicts about the theory of relativity occurred not only in the context of

[24] Ibid., p. 556. [25] Ibid.
[26] Foucault, Michel. (2003). *"Society must be defended": Lectures at the Collège de France, 1975–1976*. New York, p. 7.
[27] The concept of common sense is not used in this book for the simple reason that its content is vague and it is therefore analytically useless, unless one specifies what is called "common sense" as a specific conception within a particular manner of thinking that must be contextualized historically and culturally, which has established itself as the self-evident one and from which a contrast to "nonsensical" thinking is perceived.
[28] Foucault 2003, p. 7.
[29] Cf. Kuhn, Thomas S. (2012 [1962]). *The Structure of Scientific Revolutions*, 4th edn. Chicago; cf. Fleck, Ludwik. (1979 [1935]). *Genesis and Development of a Scientific Fact*. Chicago.

academic science, but also involved non-academic bodies of knowledge. This was not just about a dispute between physicists such as Gehrcke who adhered to classical physics or philosophers such as Kraus who were committed to specific philosophical systems on the one side, and modern physicists on the other; instead, it was specifically about a conflict between representatives of non-academic bodies of knowledge and modern physics. As the first chapter will show, these non-academic researchers were frequently already in conflict with academic science prior to the confrontation with the theory of relativity. They felt forced to defend their bodies of knowledge against modern physics due to the scientific acceptance and the overwhelming presence of the theory of relativity in the public.

From this perspective, I will show that the rupture in knowledge caused by the transition to modern physics ran deeper and differently than previous studies suggest. The criticism in the non-academic sphere in no way represented a genuinely different opposition than that of experimental physicists such as Lenard or Gehrcke, or philosophers such as Oscar Kraus; instead, the opposition of the experimental physicists and the philosophers can be described using the same analytical tools as the rebellion of the non-academic critics – that is, as a counter-discourse of marginalized, disqualified, and subjugated bodies of knowledge against modern physics. This counter-discourse questioned the axioms of modern physics and simultaneously asserted specific demands on what constitutes science. It denied the status of a theory of physics to the theory of relativity and provided niches for devalued knowledge and alternative systems of recognition. This counter-discourse was apparent not only in a content dimension in the narrow sense in the form of the existence of other bodies of knowledge, but also in a strategic dimension – that is, in amalgamations, networks, and counter-measures against the marginalization of these bodies of knowledge.

This book's approach of analyzing the opposition to the theory of relativity as an "insurrection against the centralizing power-effects that are bound up with the institutionalization and workings of any scientific discourse organized in a society such as ours"[30] is determined by a discourse analysis perspective. The following discussion will not deal with the question of the correctness or reasonableness of objections to modern physics, but will rather deal with claims to being scientific that were asserted and fought for, with tactics and strategies of this battle, and with the alliances between academic physicists and philosophers and the non-academic opposition which arose predominantly from a shared feeling of

[30] Foucault, 2003, p. 9.

being threatened and from unexpected commonalities in the understanding of what constitutes a theory of physics.

Structure of the book

This book has four chapters. The first chapter explains that in the context of the popularization of science in the nineteenth century, a space developed for non-academic "free natural science," which had a strained relationship to academic science in terms of the content of its knowledge, but also habitually.

The second chapter shows that these non-academic natural scientists had a mental block against reception of the theory of relativity (as did some physicists and philosophers), and that the theory of relativity was perceived as a threat to other bodies of knowledge. The reaction to this perceived threat was both content-based and strategic.

The third chapter focuses first on the content-based criticism of the theory of relativity, with an emphasis on the alternative bodies of knowledge that constituted the starting point for the criticism. In addition, it shows that the status of the theory of relativity as a theory of physics was attacked based on a conception of science that differed from the conception of science of modern physics.

In the fourth chapter, the social networks and protest campaigns come to the fore with their strategic reaction to the theory of relativity. The danger for various other bodies of knowledge was perceived as so great that it was considered necessary not only to develop argumentation strategies against the theory of relativity, but also to forge unusual alliances and joint campaigns. This is shown in the network against the theory of relativity comprising both academic and non-academic opponents of Einstein. This chapter shows that the content-based criticism of the theory of relativity and the public protest campaigns against it resulted from a marginalization process that had both epistemological and social dimensions in both the non-academic and academic spaces.

Sources

For the most part, this book makes use of sources from Ernst Gehrcke's papers held at the Max Planck Institute for the History of Science that have been developed since 2004. Since Gehrcke functioned as a contact person for many of Einstein's opponents, his papers include a comprehensive collection of pamphlets, manuscripts, and correspondence from both academic and non-academic opponents.

Ernst Gehrcke (1878–1960)

Photograph courtesy of the Max Planck Institute for the History of Science, Archival Collection.

Ernst Gehrcke was born in Berlin on July 1, 1878. In 1897, he commenced his studies of physics, mathematics, and chemistry at the University of Berlin. He attended lectures by van t'Hoff and Planck, among others, but he was most strongly influenced by Emil Warburg, at whose institute he worked from 1899 to 1901 and where he completed his doctorate in 1901. In 1904, he completed his post-doctoral thesis at the University of Berlin, and in 1921 he was appointed there as an honorary professor. Gehrcke spent almost his entire professional life at the Reich Institute of Physics and Technology in Berlin, where he was a member from 1901 to 1946, and director of the optics department from 1926. After 1946, he worked at the University of Jena, and then in the German Office of Weights and Measures. He died in 1960 in Birkenwerder.

Sources: Gehrcke 1901; Gehrcke 1946