APPENDIX 1

GENERAL CHRONOLOGY OF EVENTS MENTIONED IN THE TEXT

The following seven appendixes summarize some of the relevant information appearing in the foregoing chapters. The information contained here has been gathered from various sources, which are mostly documented in the main text itself. The most important sources for unpublished material include the manuscripts of Hilbert's lecture notes at the *Lesezimmer* of the mathematical institute in Göttingen as well as other documents in Hilbert's *Nachlass*; miscellaneous announcements in the *JDMV* and in the *Physikalische Zeitschrift*, and source books such as Biermann 1988 or Lorey 1916. I have made the necessary efforts to ensure that the information appearing here be as comprehensive as possible in the various categories considered, but it is indeed conceivable that additional sources may add further items to those appearing here.

1844: Grasmann's *Ausdehnungslehre.*
1854: Riemann's "On the Hypotheses which Lie at the Foundations of Geometry".
1859: Kirchhoff's law of emission and absorption.
1860: Maxwell's first paper on kinetic theory.
1861: Clebsch and Carl Neumann create the *Mathematische Annalen.*
1862: January 23 – Hilbert is born in Königsberg.
1867: Boltzmann's first article on kinetic theory.
1870: Carl Neumann's inaugural lecture in Leipzig, on the basic principles of physical theories.
1871: Klein, *Privatdozent* in Göttingen, publishes his first paper on non-Euclidean geometry.
1872: Klein's *Erlanger Programm*.
Dedekind's *Stetigkeit und irrationale Zahlen*.
Boltzmann formulates the Boltzmann Equation.
1876: Lodschmidt publishes his objections on kinetic theory and its reliance on the atomistic hypothesis.
1877: Boltzmann publishes his statistical interpretation of entropy.
1881: Riecke succeeds Weber in Göttingen.
1882: Pasch's *Vorlesungen über neuere Geometrie.*
1883: Voigt arrives in Göttingen as professor for theoretical physics.
1885: Hilbert completes his dissertation under Lindemann. Trip to Paris and Leipzig.
Minkowski moves to Bonn (until 1894).
1886: Felix Klein arrives back in Göttingen.

1888: Hilbert proves the finite basis theorem for the general case.
Dedekind's *Was sind und was sollen die Zahlen?*
Poincaré's Sorbonne lectures on electricity and optics (also in 1890-91).

1890: DMV created by initiative of Cantor.
Hertz's formulation of Maxwell's electrodynamics.

1891: Hilbert's first course on geometry in Königsberg.
DMV meeting in Halle. Wiener lectures on the Foundations of Geometry.
Veronese's work on non-Archimedean geometries.
Peano's axioms of arithmetic.

1892: Klein's failed attempt to bring Hilbert to Göttingen. Weber came instead.
October 12 - Hilbert marries Käthe Jarosch.

1893: Hilbert's summary article on algebraic invariants.
Mach's *Science of Mechanics.*

1894: Early discussions on the *EMW* project - Meyer, Weber, Klein.
Minkowski returns to Königsberg.
Nernst appointed ordinary professor at Göttingen. He heads the newly created Institute for Physical Chemistry.
Hertz's *Principles of Mechanics.*

1895: March - Hilbert arrives in Göttingen.
Cantor's *Beiträge zur Begründung der tranfiniten Mengenlehre*, that summarized and helped spreading his theory.
Dyck and Burkhardt join the editorial committee of the *EMW.*
Lorentz's article on the electrodynamics of moving bodies.

1896: Zermelo's debate with Boltzmann on kinetic theory.
Minkowski moves to Zurich.
Wien's law of radiation.

1897: Hilbert's *Zahlbericht.*
Boltzmann's *Lectures on the Principles of Mechanics.*
Wiechert and Zermelo join the Göttingen faculty.

1898: Hilbert's first course on mechanics in Göttingen.
Schur's results on projective geometry.
First articles of the *EMW* published: Schubert on the foundations of arithmetic, Netto on combinatorics and Pringsheim on irrational numbers and convergence.

1899: Hilbert elected head of the DMV.
Hilbert's first course on geometry in Göttingen.
Weber-Gauss monument unveiled. *Grundlagen der Geometrie* is published.
Riecke establishes the *Physikalische Zeitschrift* and acts as its first editor.
September - joint meeting of the DMV-GDNA in Munich. Boltzmann's popular lecture on recent developments in physics. Hilbert is present in the audience.
December – Frege and Hilbert start their correspondence on the meaning of axiomatization.

1900: Hilbert's *Über den Zahlbegriff.*
August – ICM in Paris. Hilbert presents his list of twenty-three problems.
Volkmann's textbook on theoretical physics.

Planck's law of radiation.

1901: September 18 - 150th anniversary of the GWG. In the keynote address, Hilbert analyzes the conditions of validity of the Dirichlet Principle.
November 18 – Hilbert presents his solution of the fifth problem for the plane.
Schwarzschild appointed professor of astronomy and director of the observatory in Göttingen.
Voss's *EMW* article on the principles of mechanics.
Husserl comes to Göttingen.

1902: Hilbert refuses an offering to take Fuchs' chair in Berlin. Minkowski comes to Göttingen.
Hilbert starts working on linear integral equations.
Moore teaches *GdG* in Chicago opening the way to postulational analysis in USA.

1903: Rusell's paradox published.

1904: ICM in Heidelberg. Hilbert's "On the Foundations of Logic and Arithmetic".
Runge, Prandtl and Herglotz arrive in Göttingen.
Lorentz's *EMW* article on electron theory.

1905: Hilbert's lectures on axiomatization, including physics.
Hilbert and Minkowski's seminar on electron theory.
Einstein's *annus mirabilis*.

1906: January - Poincaré's article on the dynamics of the electron, including a section on gravitation.
New building of the physics institute inaugurated in Göttingen.
Planck's textbook on radiation.

1907: Boltzmann and Nabl's *EMW* article on kinetic theory.
Einstein adopts the "equivalence principle" as fundamental for any relativistic treatment of gravitation.
November - Minkowski's first talk on electrodynamics at the GMG.
December 21 - Minkowski's second talk on electrodynamics at the GMG. Sketch of a relativistic theory of gravitation.

1908: Zermelo's proof of the well-ordering theorem.
ICM in Rome: Hilbert calls for a "methodologically unified reorganization of algebra and analysis", using his theory of integral equations. Lorentz lectures on black body radiation.
September 21 - GDNA meeting in Köln. Minkowski's "Space and Time".

1909: January 12 – Minkowski's death.
Hilbert's proof of Waring's conjecture.
Landau appointed successor of Minkowski.

1910: Hilbert is awarded the second Bolyai Prize.
Born's articles on rigidity in STR (partly based on Minkowski's ideas).
Sommerfeld's two-part article on Minkowski's four-vectors and relativity.

1911: Hilbert's first course on kinetic theory.
First Solvay Conference in Brussels.

1912: January 9 - Mie's theory of matter, first installment.

June 7 - Mie's theory of matter, second installment.
Hilbert publishes his article on kinetic theory.
Paul and Tatyana Ehrenfest's *EMW* article on statistical mechanics.
Ewald appointed as Hilbert's first assistant for physics.
August: Einstein takes his position at the ETH Zurich. Reencounters with Grossman and starts working seriously on general relativity.
Hilbert's first course on radiation theory.
September – GDNA meeting in Münster. Hilbert lectures on radiation theory
November 2 – Mie's theory of matter, third installment.
December – Born and Carathéodory discuss with Pringsheim the contents and implications of Hilbert's work on radiation theory.

1913: Hilbert publishes several versions of his approach to radiation theory. Pringsheim publishes two critical articles.
April – Hilbert corresponds with Planck on radiation theory.
May-June – Einstein and Grossmann publish their *Entwurf* theory.
September – 85th GDNA meeting in Vienna. Einstein discusses several existing theories of gravitation.
December 16 – Born's version of Mie´s theory.

1914: Hilbert's publishes the final version of his radiation theory.
April – Einstein moves to Berlin.
April – Kinetic theory week in Göttingen. Lectures by Planck, Debye, Nernst, Von Smoluchowski, Sommerfeld.
August – The Great War breaks out.
October – *Aufruf an die Kulturwelt* - Neither Einstein nor Hilbert among the signees.
November – Einstein's "On the Formal Foundations of the General Theory of Relativity". An elaborate, comprehensive version of the *Entwurf* theory.

1915: Spring – Emmy Noether arrives in Göttingen.
June 29 to July 7 – Einstein's Wolfskehl lectures.
Summer – Einstein corresponds with Paul Hertz on the 'hole argument'.
July-November – No known contact between Hilbert and Einstein. The two may have coincided for a short time at Rügen. Over the month of October, Einstein became increasingly dissatisfied with his theory, and increasingly convinced of the need to return to generally covariant field equations.
November – In four successive sessions of the Berlin academy Einstein reads four papers on gravitation and relativity.
November 7 – Beginning of the Hilbert-Einstein correspondence.
November 18 – Einstein's third Academy talk, with an explanation of Mercury's perihelion deviation.
November 20 – Hilbert's lecture at the GWG on the "Foundations of Physics".
November 25 – Einstein present the final version of his gravitational field equations.

December 6 – Hilbert receive the galley proofs of his article on the proceedings of the GWG.
December 20 – After a brief tension against the background of a possible priority issue over the formulation of the equation, Einstein writes a conciliatory letter to Hilbert.

1916: January – First solution of the gravitational field equations of GTR, formulated by Schwarschild's for a special case, is communicated by Einstein at the Berlin Academy.
March – First published version of Hilbert's communication.
April – Hilbert start corresponding with Russell on foundations of arithmetic.
May – Einstein's first systematic presentation of GTR published in *Annalen der Physik.*
Hilbert teaches GTR at Göttingen.
October – Einstein publishes his variational derivation of the gravitational field equations.
December 23 – Hilbert's second communication at the GWG.

1917: Spring – Einstein publishes the first semi-popular presentation of GTR
Einstein's first cosmological paper.
Mathematische Zeitschrift created through the efforts of Courant and Ferdinand Springer.

1918: January – Klein lectures on the status of energy conservation in Hilbert's theory and GTR. This is followed by a series of related lectures by Hilbert, Noether and others.
Easter – Weyl's *Raum-Zeit-Materie.*
Bernays arrives in Göttingen to work with Hilbert on the foundations of arithmetic
December – Discharged soldiers start returning from the front.

1921: Pauli completes his *EMW* article on GTR and moves to Göttingen to work with Born.

1922: June – Bohr's Wolfskehl lectures on atomic structure.
Hilbert's "New Foundations of Mathematics".
Hilbert teaches a course on the mathematical foundations of quantum theory.

1923: Heisenberg completes his dissertation under Born in Göttingen.

1924: Hilbert's GTR papers republished in the *Mathematische Annalen.*
Hilbert and Courant's *Methoden der mathematischen Physik.*

1925: Hilbert contracts pernicious anemia.

1926: Von Neumann arrives in Göttingen.
December – Jordan's article on the axiomatization of quantum mechanics.

1927: Construction of the new building for the mathematical institute begins.
Hilbert, von Neumann and Nordheim's paper on the foundations of quantum mechanics.

1930: Hilbert's official retirement.
Autumn - Hilbert nominated honorary citizen of Königsberg. Lectures on *Naturerkennen und Logik.*

1943: February 14 – Hilbert dies in Göttingen.

APPENDIX 2

HILBERT'S GÖTTINGEN COURSES ON PHYSICS

(and related fields): 1895-1927

In compiling the following list I have relied on several documents, mainly the *Nachlassverzeichnisse* at the mathematical institute (*HLN*) and at the *Handschriftenabteilung*, SUB Göttingen (*DHN*). These documents, however, omit several items registered in the printed version of the Göttingen *Vorlesungsverzeichnisse* (*GVV*) for the years in question. In addition, *DHN* 520 contains another list of Hilbert's courses over 46 years, between 1886 and 1932. This list is complied in Hilbert's own handwriting until WS 1917-18. It indicates, in particular, that while at Königsberg, Hilbert taught one course on Hydrodynamics in SS 1887 (notes preserved in *DHN* 522). Needless to say, there are also many additional lectures throughout the years on more purely mathematical topics not included here, and ranging from geometry, to integral and differential calculus, to invariants, number theory, set theory and logic.

I have added in parentheses a reference to the existing notes for the lecture notes of most courses and their locations.

WS 1895/96	Partial Differential Equations (Notes by Nosse - *HLN*)
SS 1896	Ordinary Differential Equations (*GVV*)
SS 1898	Mechanics (*DHN*)
SS 1899	Variational Calculus (*DHN*)
WS 1900/01	Partial Differential Equations (*DHN*)
SS 1901	Linear Partial Differential Equations (Notes by A. Andrae - *HLN*)
WS 1901/02	Potential Theory (Notes by A. Andrae - *HLN*)
SS 1902	Selected Topics in Potential Theory (Notes by A. Andrae - *HLN*)
WS 1902/03	Continuum Mechanics - Part I (Notes by Berkowski - *HLN*)
SS 1903	Continuum Mechanics - Part II (Notes by Berkowski - *HLN*)
WS 1903/04	Partial Differential Equations (Notes by Prinz & Tieffenbach-*HLN*)
WS 1904/05	Variational Calculus (Notes by E. Hellinger - *HLN*)
SS 1905	Logical Principles of Mathematical Thinking (and of Physics) (Notes by E. Hellinger – *HLN*; Notes by Born - *DHN*)
SS 1905	Integral Equations (Notes by E. Hellinger - *HLN*)
WS 1905/06	Partial Differential Equations (Notes by E. Hellinger - *HLN*)
WS 1905/06	Mechanics (Notes by E. Hellinger - *HLN*)
SS 1906	Integral Equations (Notes by E. Hellinger - *HLN*)

WS 1906/07	Continuum Mechanics (Notes by E. Hellinger - *HLN*)
SS 1907	Differential Equations (Notes by E. Hellinger - *HLN*)
WS 1909/10	Partial Differential Equations (Notes by R. Courant - *HLN*)
SS 1910	Selected Chapters in the Theory of Partial Differential Equations (Notes by R. Courant - *HLN*)
WS 1910/11	Mechanics (Notes by F. Frankfurther, W. Behrens - *HLN*)
SS 1911	Continuum Mechanics (Notes by E. Hecke - *HLN*)
WS 1911/12	Statistical Mechanics (Notes by E. Hecke - *HLN*)
SS 1912	Radiation Theory (*HLN*)
SS 1912	Ordinary Differential Equations (*HLN*)
SS 1912	Mathematical Foundations of Physics (*GVV*)
WS 1912/13	Molecular Theory of Matter (*HLN*)
WS 1912/13	Partial Differential Equations (Notes by B. Baule - *HLN*)
WS 1912/13	Mathematical Foundations of Physics (*GVV*)
SS 1913	Foundations of Mathematics (and the axiomatization of Physics) (*GVV*)
	Electron Theory (*HLN*)
WS 1913/14	Electromagnetic Oscillations (*HLN*)
	Analytical Mechanics (*GVV*)
	Exercises in Mechanics (together with H. Weyl) (*GVV*)
SS 1914	Statistical Mechanics (Notes by L.Lange - *HLN*)
	Differential Equations (*GVV*)
WS 1914/15	Lectures on the Structure of Matter (*GVV*)
SS 1915	Structure of Matter (Born's Theory of Crystals) (*HLN*)
WS 1915/16	Differential Equations (*HLN*)
SS 1916	Partial Differential Equations (*HLN*)
	Foundations of Physics I (General Relativity) (*HLN*)
WS 1916/17	Foundations of Physics II (General Relativity) (Notes by R. Bär – *HLN*; Hückel - *EHN*)
SS 1917	Electron Theory (Notes by H. Humm - *HLN*)
SS 1918	Ordinary Differential Equations (*GVV*)
WS 1918/19	Space and Time (Notes by P. Bernays – *HLN*; E. Hückel - *EHN*)
	Partial Differential and Integral Equations (*GVV*)
HS 1919	Nature and Mathematical Knowledge (Notes by P. Bernays – HLN. Special Autumn Semester)
WS 1920	Mechanics (*GVV*)
SS 1920	Higher Mechanics and the New Theory of Gravitation (Notes by A. Kratzer – *HLN*; E. Hückel - *EHN*)
WS 1920-21	Mechanics and the New Theory of Gravitation (Notes by A. Kratzer – *HLN*; E. Hückel - *EHN*)
SS 1921	Einstein's Gravitation Theory (*GVV*)
	Basic Principles of the Theory of Relativity (Notes by P. Bernays - *HLN*) – for students of all faculties
SS 1921	On Geometry and Physics (Partial Notes by E. Hückel – *EHN*)
SS 1922	Statistical Mechanics (Notes by L. Nordheim - *HLN*)

WS 1922/23	Mathematical Foundations of Quantum Theory (Notes by L. Nordheim, G. Heckhausen - *HLN*) Knowledge and Mathematical Thought (Notes by W. Ackermann - *HLN*) – for students of all faculties
SS 1923	Our Conception of Gravitation and Electricity (generally understood) (*GVV*)
WS 1923/24	On the Unity of Science (*HLN*)
SS 1924	Mechanics and Relativity Theory (Notes by L. Nordheim - *HLN*)
WS 1926/27	Mathematical Methods of Quantum Theory (Notes by L. Nordheim - *HLN*)
SS 1930	Mathematical Methods of Modern Physics
WS 1930/31	Nature and Thought
WS 1931/32	Philosophical Foundations of Modern Natural Science

APPENDIX 3

SEMINARS, MISCELLANEOUS LECTURES

The main sources of information for lists 3.C and 3.D are the periodical announcements of mathematical courses and activities at the various German universities reported in the relevant sections of the *JDMV*. Additional information concerning these, as well as the other two sections, appears in various documents in *DHN*, some journals quoted in the text, and in the *Vorlesungsverzeichnisse* of the University of Göttingen.

3.A. ADVANCED SEMINARS TAUGHT BY HILBERT:

1.	Mechanics (with Klein)	1896 (?)
2.	Stability Theory (with Minkowski)	SS 1903
3.	Exercises in Mechanics (with Minkowski)	SS 1904
4.	Mechanics	WS 1904-05
5.	Electron Theory (with Minkowski et al)	SS 1905
6.	The Equations of Electrodynamics (with Minkowski)	SS 1907
7.	Hydrodynamics	???
8.	Electrodynamics	???
9.	Kinetic Theory of Gases	1912
10.	Structure of Matter (with Debye)	WS 1914-15 to SS 1920
11.	Structure of Matter	WS 1920-21
12.	Structure of Matter (with Born)	SS 1921 to SS 1928
13.	Theoretical and Math. Physics (with Born and Herglotz)	WS 1927/28

3.B. PUBLIC LECTURES BY HILBERT:

1.	Stability Theory	(Kassel) 1903
2.	Maxwell's Theory of Gases	1912
3.	Statistical Mechanics	1912
4.	On Nernst's Law of Heat	1913
5.	Space and Time	(Bucharest) 1918
6.	On the Laws of Chance	1920
7.	Nature and Mathematical Knowledge	(Copenhagen) 1921
8.	The Knowledge of Nature and Logic	(Königsberg) 1930

3.C. PHYSICAL LECTURES AT THE GMG AND GWG BY HILBERT:

1.	Continuum Mechanics	Feb. 24, 1903
2.	Continuum Mechanics	Aug. 4, 1903
3.	The relations between variational principles and the theory of partial differential equations, with applications to the integral principles of mechanics.	Jan. 18, 1910
4.	Kinetic theory of gases	Dec 19, 1911
5.	Axiomatic Foundations of Physics (*Ferienkurs* for high-school teachers)	April 15-27, 1912
6.	Theory of Radiation	July 30, 1912
7.	Theory of Radiation	Jan. 21, 1913
8.	Theory of Radiation	July 28, 1914
9.	The Fundamental Equations of Physics (General Relativity)	Nov. 16, 1915
10.	Foundations of Physics – First Part	November 20, 1916
11.	Foundations of Physics	December 4, 1915
12.	Theory of Invariants and the Energy Principle	Jan. 25, 1916
13.	The Causality Principle in Physics	Nov. 21 & 28, 1916
14.	Foundations of Physics – Second Part	Dec. 23, 1916
15.	Non-Euclidean Geometry and the new Gravitation Theory	Jan. 23, 1917
16.	Laue's Theorem	June 12, 1917
17.	Reply to Klein's "On Hilbert's first note on the Foundations of Physics"	Jan. 29, 1918
18.	The Energy Principle for the Motion of Planets in the New Theory of Gravitation	June 4, 1918
19.	On Weyl's Communication (May 2, 1918) to the Berlin Academy "The Energy Principle in the General Theory of Relativity"	July 15, 1918

3.D. LECTURES ON PHYSICAL ISSUES AT THE GMG BY OTHERS:

1.	On the Axioms of Vector Addition (R. Schimmack)	June 9, 1903
2.	Molecular Theory of Heat Conduction (G. Prasad)	June 9, 1903
3.	Capillarity (H. Minkowski)	June 23, 1903
4.	Linear Heat Conduction in Surfaces (G. Prasad)	June 23, 1903
5.	Maxwell's Work on Stress Systems (Klein)	June 23, 1903
6.	Euler's Equations of Hydrodynamics (Minkowski)	June 28, 1903
7.	Electromagnetic Quantity of Motion (Abraham)	July 14, 1903
8.	Gibb's Thermodynamical Surfaces (H. Happel)	Dec. 8, 1903
9.	Variational Principles in Electrodynamics (Schwarzschild)	Jan. 26, 1904
10.	Can the Electron Reach the Speed of Light (P. Hertz)	Jan. 26, 1904
11.	On a Seminar on Hydrodynamics and Hydraulics (Klein)	Feb. 9, 1904
12.	Motion of a Material Particle on a Uniformly Moving Plane (P. Ceresole)	May 17, 1904

13.	On the Elasticity of the Earth (G. Herglotz)	June 28, 1904
14.	On Sommerfeld's Works on Electron Theory (G. Herglotz)	Dec. 6, 1904
15.	Motion of a Fluid with Little Friction (L. Prandtl)	Dec. 13, 1904
16.	On a Talk by Poincaré on n the Future of Mathematical Physics (C.H. Müller)	Jan. 24, 1905
17.	On Gases ans Vapors (L. Prandtl)	May 23, 1905
18.	On Poincaré's Published Lectures on Mathematical Physics (M. Abraham)	Feb. 6, 1906
19.	Poincaré's Research on Rotating Fluid Masses (H. Müller)	Feb. 13, 1906
20.	On Gibb's Book on Statistical Mechanics (Zermelo)	Feb. 20, 1906
21.	Graphical Methods in Mechanics and Physics (C. Runge)	Feb. 27, 1906
22.	On Painlevé's Work on the Foundations of Mechanics (Carathéodory)	May 28, 1906
23.	On W. Nernst's "On Chemical Equilibrium" (Minkowski)	June 26, 1906
24.	Problems of Aeronavigation (Prandtl & Wiechert)	Oct. 30, 1906
25.	The Mathematical Theory of Elasticity (C.H. Müller)	Nov. 6, 1906
26.	On Botzmann's *H*-Theorem (P. Ehrenfest)	Nov. 13, 1906
27.	The Evolution of the Theory of Radiation through the Works of Lorentz, Rayleigh, W. Wien and Planck (Minkowski)	Dec 1, 1906
28.	On H. Witte's "On the Possibility of a Mechanical Explanation of Electromagnetic Phenomena" (Abraham)	Dec. 18, 1906
29.	On the Application of Probability Calculus to Astronomy (Schwarzschild)	Jan. 8, 1907
30.	Theories of the Effects of Air Resistance (L. Prandtl)	Jan. 22, 1907
31.	Seismic Waves (E. Wiechert)	Jan. 29, 1907
32.	Statistical Stellar Astronomy (Schwarzschild)	Feb. 19, 1907
33.	Seismic Rays (G. Herglotz)	May 14, 1907
34.	Solutions of Differential Equations for Gas Spheres (*Gaskügeln*) (K. Schwarzschild)	July 30, 1907
35.	On the Equations of Electrodynamics (Minkowski)	Nov. 5, 1907
36.	Graphical Methods in Fluid Mechanics (C. Runge)	Nov. 26, 1907
37.	Applications of Quaternions to Electron Theory (Klein)	Dec. 10, 1907
38.	A New, Simple General Proof of the Second Law of Thermodynamics (Carathéodory)	Dec. 17, 1907
39.	An Overview of Man's Attempts to Fly (C. Runge)	March 3, 1908
40.	Report on a Joint Seminar on Hydrodynamics (F. Klein, L. Prandtl, C. Runge, E. Wiechert)	May 5, 1908
41.	An Experiment on Stabilization of Air Balloons (L. Prandtl)	May 12, 1908
42.	On Lanchester's Book "Aerodynamics" (C. Runge)	May 12, 1908
43.	On the Equations of Electrodynamics (Minkowski)	July 28, 1908
44.	On Recent French Research on Aviation (C. Runge)	Nov. 3, 1908
45.	Recent Works on Earth Pressure (Th. Van Kármán)	Nov. 24, 1908
46.	Theory of Earth Pressure (A. Haar & Th. Van Kármán)	Dec. 8, 1908
47.	The New Mechanics (Poincaré, Wolfskehl Lectures)	April 22-28, 1909
48.	Position Determination from and Air Balloon (Runge)	May 11 & 18, 1909

49. Defintion of a Rigid Body on the "Einstein-Minkowski" System of Electrodynamics (M. Born) June 8 & 15, 1909
50. Average Motion in the Theory of Perturbations and Applications of Probability to Astronomy (F. Bernstein) June 22, 1909
51. On Minkowski's *Nachlass* (Electrodynamics) (M. Born) Feb. 8, 1910
52. On the Definition of a Rigid Body (M. Born) Juni 21, 1910
53. Old and New Problems in Physics (Lorentz, Wolfskehl Lectures) Summer 1910
54. Stable Orderings of Electrons in the Atom (L. Föppl - PhD Dissertation supervised by Hilbert) Nov. 21, 1911
55. On Herglotz Work on Deformable Bodies in the Theory of Relativity (M. Born) Dec. 12, 1911
56. The Behavior of Solid Bodies and Hooke's Law (L. Prandtl) Jan. 16, 1912
57. A Newly Discovered Relation Between Elasticity of Crystals and Optical Oscillations (M. Born & Th. van Kármán) Feb. 13, 1912
58. Molecular Oscillations and Specific Heat (Born & van Kármán) May 14, 1912
59. Theory of Dispersion in Crystals (P.P. Ewald - PhD Diss.) June 4, 1912
60. New Works of Poincaré and Ehrenfest on the Axiomatic Foundation of Quantum Theory (Th. van Kármán) Juli 16, 1912
61. Statistical Mechanics (P. Hertz) Nov. 26, 1912
62. On Sommerfeld's Article on the Theory of Oscillating Equations (H. Weyl) Dec. 10, 1912
63. Mie's Theory of Matter (M. Born) Dec. 17, 1912
64. Motion of Fluids (L. Prandtl) Feb. 4, 1913
65. Reports on the Solvay Conference, Brussels 1911 (Born & van Kármán) Feb. 25 & March 4, 1913
66. Kinetic Theory Week (Debye, Nernst, Von Smoluchowski, Lorentz, Sommerfeld, Planck - Wolfskehl Lectures) May 1913
67. An Application of Diophantine Approximations to a Question in Statistical Mechanics (E. Hecke) May 20, 1913
68. On the Structure of Crystals (M. Born) June 7, 1913
69. Recent Work of J.J. Thomson on Canal Waves (*Kanalstrahlen*) (C. Runge) Juni 24, 1913
70. An Application of Quantum Theory to Capillarity (M. Born & R. Courant) July 1, 1913
71. On a Recent Work of E. Noether on Turbulences in a Fluid (Th. van Kármán) July 30, 1913
72. On Poincaré's Book on Cosmogonic Hypotheses (L. Föppl) July 30, 1913
73. Propagation of Light in Transparent Media (W. Behrens) Nov. 4, 1913
74. On Mie's theory of Matter (M. Born) Nov. 25, 1913
75. The Solution of an Equation of Spectroscopy (C. Runge) Dec. 2, 1913
76. Recent Work of Einstein and Grossmann on Gravitation (F. Böhm) Dec. 9, 1913
77. On Mie's Theory of Matter (M. Born) Dec. 16, 1913

78.	Theoretical Treatment of Phenomena in Diluted Gases (B. Baule - PhD Dissertation Supervised by Hilbert)	Feb 24, 1914
79.	Review of Recently Published Works by von Smoluchowski (Brownian Movement), and Einstein (On Light Deflection; On the Determination of Molecular Dimensions) (P. Hertz)	Feb. 24, 1914
80.	Lattice Theory of Diamonds (M. Born)	March 3, 1914
81.	Intensity Distribution in Spectral Lines (P. Debye)	Dec. 18, 1914
82.	Foundation and Problems of Quantum Theory (P. Debye)	Feb. 23, 1915
83.	Dynamics of Crystal Lattices (M. Born)	Feb. 25, 1915
84.	Structure of Crystals (F. Klein, with Hilbert and Mügge)	May 18, 1915
85.	On Herglotz's Research on Potentials in the Interior of Attracting Masses (Wiarda)	June 1, 1915
86.	On Modern Physics (A. Sommerfeld)	June 15, 1915
87.	On Gravitation (A. Einstein, Wolfskehl Lectures)	June 29 – July 7, 1915
88.	Theory of Distant Forces (Uhlich-Pirna)	July 20, 1915
89.	History of Mechanics up until Galileo (C. Müller, Wolfskehl Lectures)	March 2-4, 1916
90.	Diffusion, Brownian Movement, Colloidal Particles	
91.	(Von Smoluchowski, Wolfskehl Lectures)	June 20-22, 1916
92.	Four-dimensional Vectorial Analysis (C. Runge)	Dec. 5, 1916
93.	Foundations of a Theory of Matter (G. Mie, Wolfskhel Lectures)	June 5-8, 1917
94.	On the Riemannian Curvature (Klein)	Oct. 30, 1917
95.	On the Riemannian Curvature (Klein)	Nov. 6, 1917
96.	On G. Herglotz's Paper on Curvature and Gravitation (Klein)	Dec. 4, 1917
97.	On Liquid Crystals (M. Born)	Dec. 11, 1917
98.	On Invariants of Arbitrary Differential Expressions (E. Noether)	Jan. 15, 1918
99.	On Hilbert's First Note on the Foundations of Physics (Klein)	Jan. 22, 1918
100.	On Einstein's Cosmological Ideas of 1917 (F. Klein)	May 7, 1918
101.	On Quantum Theory (M. Planck, Wolfskehl Lectures)	May 13-17, 1918
102.	On Einstein's "On Gravitational Waves" (C. Runge)	Jun. 31, 1918
103.	On Einstein's Cosmological Ideas of 1917 (Klein)	June 11, 1918
104.	On the Three-body Problem (C. Carathéodory)	June 24, 1918
105.	Einstein's "Energy Principle in General Relatitvity" (Klein)	July 4, 1918
106.	Hilbert's Energy Vector (Klein)	July 22, 1918
107.	Invariant Variational Problems (E. Noether)	July 23, 1918
108.	Organic Causality (Hans Driesch, Wolfskhel Lectures)	Dec. 16-19, 1918
109.	On the Structure of the Atom (N. Bohr, Wolfskehl Lectures)	June 1922

APPENDIX 4

HILBERT'S PHYSICS ASSISTANTS AND DOCTORAL STUDENTS

4.A. ASSISTANTS FOR PHYSICS:

Some of the persons listed below worked with Hilbert officially under this denomination (e.g., Ewald and Landé). Others (e.g., Bernays) may be classified as such simply for having actually fulfilled this role (e.g., by maintaining Hilbert updated on recent developments on physics, by preparing the notes for his physical courses, etc.) in the period mentioned.

1. 1912-13: Paul P. Ewald
2. 1913-14: Alfred Landé
3. 1914-16: Louise Lange
4. 1916-17: Richard Bär
5. 1918-19: Paul Bernays
6. 1920-21: Adolf Kratzer
7. 1921-22: Erich Hückel
8. 1922-27: Lothar Nordheim
9. 1927-28: Eugene Wigner

4.B. DOCTORAL STUDENTS ON PHYSICAL TOPICS:

As listed in *HGA* Vol. 3, 430-432.

1. Ludwig Föppl: "Stabile Anordnungen von Elektronen im Atom" (March 1, 1912)
2. Hans Bolza: "Anwendungen der Theorie der Integralrechnungen auf die Elektronentheorie und die Theorie der verdünnten Gasen." (July 2, 1913)
3. Bernhard Baule: "Theoretische Behandlung der Erscheinungen in verdünnten Gasen." (Feb. 18, 1914)
4. Kurt Schelenberg: "Anwendungen der Integralgleichung auf die Theories der Elektrolysie." (June 24, 1914)
5. Hellmuth Kneser: "Untersuchungen zur Quantentheorie." (July 22, 1921)

APPENDIX 5

LETTERS QUOTED IN THE BOOK

Numbers for each entry indicate the chapter and footnote where a letter is quoted in the book, and where its exact reference can be found.

1.	Abraham to Stark	Oct. 10, 1914	(Ch. 6, # 62)
2.	Apelt to Grassmann	Sept. 3, 1845	(Ch. 1, # 85)
3.	Birkhoff to van der Waerden	Nov. 1, 1973	(Ch. 9, # 41)
4.	Born to Hilbert	April 4, 1916	(Ch. 8, # 23)
5.	Born to Hilbert	Aug. 24, 1916	(Ch. 8, # 26)
6.	Born to Hilbert	Nov. 23, 1915	(Ch. 7, # 116)
7.	Born to Hilbert	Aug. 3, 1909	(Ch. 4, # 67)
8.	Born to Hilbert	Jan. 7, 1913	(Ch. 5, # 94)
9.	Born to Hilbert	Oct. 28, 1915	(Ch. 7, # 100)
10.	Cantor to Hilbert	Jan. 1, 1900	(Ch. 2, # 60)
11.	Carathéodory to Hilbert	Dec. 12, 1912	(Ch. 5, # 91)
12.	Carathéodory to Hilbert	April 4, 1913	(Ch. 5, # 106)
13.	Dedekind to du Bois-Reymond	March, 1888	(Ch. 2, # 10)
14.	Dingler to Hilbert	Jan. 2, 1915	(Ch. 8, # 40)
15.	Einstein to Besso	Dec. 10, 1915	(Ch. 7, # 50, 94)
16.	Einstein to Besso	Jan. 1, 1916	(Ch. 4, # 85)
17.	Einstein to Besso	Jan. 3, 1916	(Ch. 7, # 95)
18.	Einstein to Ehrenfest	Undated, 1914	(Ch. 6, # 20)
19.	Einstein to Ehrenfest	April 1, 1914	(Ch. 6, # 26)
20.	Einstein to Ehrensfest	Dec. 26, 1915	(Ch. 7, # 95)
21.	Einstein to Freundlich	Aug. 1, 1913	(Ch. 6, # 58)
22.	Einstein to Freundlich	Jan. 1, 1914	(Ch. 6, # 54)
23.	Einstein to Habitch	Dec. 24, 1907	(Ch. 6, # 10)
24.	Einstein to Hilbert	Nov. 7, 1915	(Ch. 7, # 98)
25.	Einstein to Hilbert	Nov. 12, 1915	(Ch. 7, # 101, 104)
26.	Einstein to Hilbert	Nov. 14, 1915	(Ch. 7, # 56)
27.	Einstein to Hilbert	March 16, 1916	(Ch. 7, # 108)
28.	Einstein to Hilbert	May 30, 1916	(Ch. 8, # 30)
29.	Einstein to Hilbert	May 30, 1916	(Ch. 8, # 76)
30.	Einstein to Hilbert	June 2, 1916	(Ch. 8, # 30)
31.	Einstein to Hilbert	June 2, 1916	(Ch. 8, # 93)
32.	Einstein to Hilbert	May 19, 1917	(Ch. 8, # 55)
33.	Einstein to Hilbert	Nov. 15, 1915	(Ch. 7, # 108)
34.	Einstein to Hilbert	Nov. 18, 1915	(Ch. 7, # 111)
35.	Einstein to Klein	Dec. 15, 1917	(Ch. 9, # 97)

36.	Einstein to Klein	April 12, 1917	(Ch. 8, # 61)
37.	Einstein to Kleiner	April 3, 1912	(Ch. 4, # 86)
38.	Einstein to Lorentz	Aug. 16, 1913	(Ch. 6, # 18)
39.	Einstein to Lorentz	Oct. 12, 1915	(Ch. 7, # 92)
40.	Einstein to Lorentz	Jan. 17, 1916	(Ch. 8, # 2)
41.	Einstein to Mie	May 1, 1917	(Ch. 6, # 58)
42.	Einstein to Mie	June 1, 1917	(Ch. 6, # 58)
43.	Einstein to Sommerfeld	July 15, 1915	(Ch. 7, # 17, 89)
44.	Einstein to Sommerfeld	Nov. 28, 1915	(Ch. 7, # 93, 118)
45.	Einstein to Sommerfeld	Dec. 9, 1915	(Ch. 7, # 119)
46.	Einstein to Sommerfeld	Summer 1910	(Ch. 4, # 85)
47.	Einstein to Stark	Nov. 1, 1907	(Ch. 4, # 58)
48.	Einstein to Weyl	Nov. 23, 1916	(Ch. 8, # 53)
49.	Einstein to Wien	Oct. 10, 1915	(Ch. 8, # 42)
50.	Einstein to Zangger	April, 1915	(Ch. 6, # 1, 30)
51.	Einstein to Zannger	July 7, 1915	(Ch. 7, # 36)
52.	Einstein to Zannger	Aug. 7, 1915	(Ch. 7, # 40)
53.	Ewald to Hilbert	April 11, 1912	(Ch. 5, # 80)
54.	Frege to Hilbert	Jan. 6, 1900	(Ch. 2, # 95)
55.	Hecke to Hilbert	March 7, 1916	(Ch. 2, # 86)
56.	Hilbert to Einstein	Nov. 19, 1915	(Ch. 7, # 114)
57.	Hilbert to Einstein	May 27, 1916	(Ch. 8, # 40)
58.	Hilbert to Einstein	Nov. 13, 1915	(Ch. 7, # 106)
59.	Hilbert to Einstein	May 25, 1916	(Ch. 8, # 93)
60.	Hilbert to Einstein	March 30, 1912	(Ch. 5, # 77)
61.	Hilbert to Einstein	Oct. 3, 1912	(Ch. 5, # 145)
62.	Hilbert to Frege	Jan. 15, 1900	(Ch. 2, # 96)
63.	Hilbert to Frege	Nov. 7, 1903	(Ch. 3, # 5)
64.	Hilbert to Frege	Dec. 29, 1899	(Ch.2, 93,94,98, 99)
65.	Hilbert to Hurwitz	June 6, 1894	(Ch. 2, # 25)
66.	Hilbert to Klein	May 23, 1893	(Ch. 2, # 12)
67.	Hilbert to Klein	Nov. 15, 1893	(Ch. 2, # 13)
68.	Hilbert to Klein	Sept. 14, 1892	(Ch. 1, # 38)
69.	Hilbert to Poincaré	Nov. 6, 1908	(Ch. 5, # 13)
70.	Hilbert to Poincaré	Nov. 19, 1908	(Ch. 5, # 13)
71.	Hilbert to Poincaré	Nov. 25, 1908	(Ch. 5, # 13)
72.	Hilbert to Poincaré	May 6, 1912	(Ch. 5, # 62)
73.	Hilbert to Russell	April 12, 1916	(Ch. 8, # 40)
74.	Hilbert to Schwarzschild	July 17, 1915	(Ch. 7, # 37)
75.	Hilbert to Schwarzschild	Oct. 23, 1915	(Ch. 7, # 46)
76.	Hilbert to Sommerfeld	April 5, 1912	(Ch. 5, # 63)
77.	Hilbert to Weyl	April 22, 1918	(Ch. 9, # 78)
78.	Klein to Pauli	May 8, 1921	(Ch. 7, # 84, 87)
79.	Klein to Pauli	May 8, 1921	(Ch. 8, # 129)
80.	Klein to Pauli	May 8, 1921	(Ch. 8, # 49)
81.	Mie to Hilbert	Feb. 13, 1916	(Ch. 6, # 66; Ch. 8, # 43)

82.	Mie to Hilbert	Feb. 29, 1916	(Ch. 8, # 46)
83.	Mie to Hilbert	May 8, 1917	(Ch. 8, # 48)
84.	Mie to Hilbert	May 16, 1917	(Ch. 8, # 48)
85.	Mie to Hilbert	June 10, 1917	(Ch. 8, # 50)
86.	Mie to Hilbert	July 2, 1917	(Ch. 8, # 51, 52)
87.	Mie to Hilbert	Dec. 26, 1917	(Ch. 8, # 50)
88.	Mie to Stark	Dec. 10, 1913	(Ch. 6, # 62)
89.	Mie to Wien	Oct, 10, 1915	(Ch. 8, # 42)
90.	Mie to Wien	Feb. 6, 1916	(Ch. 8, # 42)
91.	Minkowski to Einstein	Oct. 9, 1907	(Ch. 4, # 5)
92.	Minkowski to Hilbert	March 31, 1896	(Ch. 1, # 46)
93.	Minkowski to Hilbert	Dec. 20, 1890	(Ch. 1, # 18)
94.	Planck to Hilbert	Jan. 12, 1917	(Ch. 8, # 33)
95.	Planck to Hilbert	Feb. 8, 1917	(Ch. 8, # 31, 33)
96.	Planck to Hilbert	Jan. 20, 1918	(Ch. 8, # 31)
97.	Planck to Hilbert	Jan. 27, 1918	(Ch. 8, # 31)
98.	Planck to Hilbert	April 4, 1913	(Ch. 5, # 108)
99.	Planck to Hilbert	April 15, 1913	(Ch. 5, # 109)
100.	Runge to Hilbert	May 8, 1918	(Ch. 8, # 102)
101.	Sommerfeld to Hilbert	May 4, 1916	(Ch. 8, # 24)
102.	Voigt to Lorentz	May 19, 1911	(Ch. 5, # 17)
103.	Volkmann to Hilbert	Jan. 1, 1900	(Ch. 1, # 158)
104.	Voss to Hilbert	July 19, 1899	(Ch. 1, # 176)
105.	Weber to Dedekind	End of 1879	(Ch. 1, # 14)

APPENDIX 6

ITEMS FROM THE HILBERT *NACHLASS* REFERRED TO IN THE BOOK

Numbers for each entry indicate the chapter and footnote where an item is referred to in the book.

DHN 40A, 1. 1909-1918.	Correspondence Born-Hilbert	*Passim.*
DHN 55, 4-5. Dec. 12, 1912, Apr. 4, 1913.	Letters Carathéodory to Hilbert	Ch. 5, # 91, #106.
DHN 98, 1. April 11, 1912.	Letter Ewald to Hilbert	Ch. 5, # 80.
DHN 141, 7. March 7, 1916.	Letter Hecke to HIlbert	Ch. 7, #86.
DHN 254. 1913-1917.	Correspondence Mie-Hilbert	*Passim.*
DHN 308A, 4. 1912-1917.	Correspondence Planck-Hilbert	Ch. 5, # 108, 109; Ch. 8, # 31, 33.
DHN 379A. May 14, 1916.	Letter Sommerfeld to Hilbert	Ch. 8, # 24.
DHN 416. 1886-1913.	Correspondence Hilbert-Volkmann	Ch. 1, #158, #163.
DHN 418, 1. July 19, 1899.	Letter Voss to Hilbert	Ch. 1, #176.

DHN 457, 17. April 22, 1918.	Letter Hilbert to Weyl	Ch. 9, # 78.
DHN 504. SS 1882.	Lecture notes of a course on number theory taught by Weber (Annotated by Hilbert)	Ch 1, #4.
DHN 505-519. Undated, probably around 1880.	Hilbert's student notebooks	Ch. 1, # 6-7; 11.
DHN 520. Undated.	A list of Hilbert's courses over 46 years, between 1886 and 1932. This list is complied in Hilbert's own handwriting until WS 1917-18	Ch.1, # 38, Ch. 2, # 30, Ch. 5 # 158.
DHN 522. SS 1887.	Hydrodynamics – Lecture Notes	Ch. 1, # 20, Ch. 2, # 30.
DHN 535. SS 1891.	Projective Geometry – Lecture Notes	Ch. 2, # 3.
DHN 553. WS 1898-99.	Mechanics – Lecture Notes	Ch. 9, # 44-47.
DHN 558a. SS 1905.	Logical Principles of Mathematical Thought – Lecture Notes (Annotated by Max Born)	Ch. 3.
DHN 570, 9. 1905.	Notes from a seminar on electron theory taught by Hilbert, Minkowski, Wiechert, and Herglotz	Ch. 3, # 43.
DHN 570, 1. Undated.	Random collection of handwritten notes related to many different courses and seminars of Hilbert	Ch. 3, # 36.

DHN 570, 5. 1907.	Notes by Hermann Mierendorff from a seminar on electrodynamics taught by Hilbert and Minkowski,	Ch. 4, #15.
DHN 586. August 1912.	Notes of a talk on radiation theory	Ch. 5, # 73, 82.
DHN 590. January 1913.	Notes of a lecture on Nernst's law of heat	Ch. 5, #144.
DHN 593. Undated. Probably 1903.	Notes of a talk on stability theory	Ch. 2, #78; Ch. 3, # 37.
DHN 596. July 26, 27, 28, 1923.	Notes on three talks about "Foundations of Physics"	Ch. 8, #121.
DHN 600. Undated. Probably before 1900.	Tagebuch	Ch. 3, #1.
DHN 634, 15-22. Undated. Around 1916.	Manuscripts with notes related to Hilbert 1917	Ch. 8, # 21, # 22.
DHN 634. Before or on Dec 6, 1915.	Galley proofs of Hilbert 1916	Ch. 7, # 63.
DHN 642. Undated. Around late 1915-1916.	Talk on the causality principle	Ch. 7, # 65.
DHN 696. Undated.	Random collection of handwritten notes related to many different courses and seminars of Hilbert	Ch. 3, # 36.
DHN 707. SS 1907.	Radiation Heath – Minkowski's Lecture Notes	Ch. 4, #3.
DHN 742. June 1915.	Lecture of Einstein on GTR	Ch. 7, # 33.

APPENDIX 7

HILBERT'S AXIOMS FOR RADIATION THEORY

The precise context of Hilbert's various systems of axioms for radiation theory is discussed in § 5.3.

1. FIRST VERSION (HILBERT 1913):

Axiom I: In a state of thermal equilibrium of radiation no interchange of energy among colors takes place for a given portion of matter. Moreover, the radiation of each color is itself in a state of equilibrium.

Axiom II: The values of the three characteristic magnitudes of any wavelength at a given temperature (the emission coefficient η, the absorption coefficient α, and the speed of light q) are uniquely determined by the physical properties of matter at the given position in space where that matter is currently found.

Axiom III: There exist substances whose absorptions coefficient α and refraction capacity are such that the quotient α/q^2 falls short of the wavelength λ by a function which is arbitrarily prescribed in advance.

2. SECOND VERSION (HILBERT 1913A):

Axiom 1 (Axiom of the compensation of the total energy): In a state of thermal equilibrium of radiation the total amount of energy emitted by any given volume element for all colors equals the amount energy absorbed by it.

Axiom 2 (Axiom of the compensation of energy for each individual color): In a state of thermal equilibrium of radiation there is no exchange of radiant energy across different colors at any given region of matter. Moreover, the radiation corresponding to each color is itself in a state of independent equilibrium.

Axiom 3 (Axiom of the physical nature of the coefficients q, η, α): The characteristic magnitudes of radiation for any given wavelength (speed of light q, emission coefficient η, absorption coefficient α) are uniquely determined by the physical conditions of matter in the region where the matter is found, and by them alone.

Axiom 4 (Axiom of the physical nature of the radiation density): In a state of thermal equilibrium of radiation, the density of the radiant energy for each wavelength for which matter is not diathermic, is uniquely determined by the physical conditions of matter in the region where the matter is found, and by them alone.

Axiom 5 (Axiom of the existence of certain diversities in matter): There exist substances whose absorptions coefficient α and refraction capacity are such that the quotient α/q^2 falls short of the wavelength λ by a function which is arbitrarily prescribed in advance.

3. THIRD VERSION (HILBERT 1914):

Axiom A (Axiom of the compensation of the total energy): Every optical system admits a state of radiation equilibrium. In this state, the total amount of energy emitted by all colors from any given volume element equals its total absorbed energy.

Axiom B (Axiom of the compensation of energy for each individual color): Every optical system admits a state of radiation equilibrium. In this state, there is no exchange of radiant energy corresponding to different colors at any given region of matter. Moreover, the radiation corresponding to each color is itself in a state of independent equilibrium.

Axiom C (Axiom of the physical nature of the radiation density): In the —always possible— state of equilibrium, the density of the radiation energy of every wavelength is uniquely determined by the physical conditions of matter in the region where the matter is found, and by them alone.

Axiom D (Axiom of the existence of certain differences among substances): There are substances for which the values of α (absorption coefficient) and q (velocity of propagation of light) are such that the quotient α/q^2 equals the value of any arbitrarily function of λ prescribed in advance.

REFERENCES

COMMONLY USED ABBREVIATIONS

AHES	Archive for History of Exact Sciences
AIHS	Archives int. d'histoire des sciences
AJP	American Journal of Physics
AM	Annals of Mathematics
AMP	Archiv für Mathematik und Physik
AMS	American Mathematical Society
AP	Annalen der Physik
ASN	*Nachlass* Arnold Sommerfeld, Deutsches Museum, Munich.
BSL	The Bulletin of Symbolic Logic
BSPS	Boston Studies in the Philosophy of Science
CPAE	The Collected Papers of Albert Einstein (Princeton, Princeton University Press).
CRN	*Nachlass* Runge – Du Bois Reymond, Staatsbibliothek Berlin, Preußischer Kulturbesitz
DHN	*Nachlass* David Hilbert – Niedersächsische Staats- und Universitätsbibliothek Göttingen, Abteilung Handschriften und Seltene Drucke, Nachlass Hilbert (Cod. Ms. D. Hilbert).
DMV	Deutschen Mathematiker-Vereiningung
DSB	Dictionary of Scientific Biography
EHN	*Nachlass* Erich Hückel, Staatsbibliothek Berlin, Preußischer Kulturbesitz
EMV	Encyklopädie der mathematischen Wissenschaften mit Einschluss ihrer Anwendungen
ES	Einstein Studies
GdG	Grundlagen der Geometrie
GDNA	Gesellschaft Deutscher Naturforscher und Ärzte
GMG	Göttingen Mathematische Gesellschaft
GN	Nachrichten von der Königlichen Gesellschaft der Wissenschaften zu Göttingen, Mathematische-Physikalische Klasse
GTR	General Theory of Relavitity

GWG	Königlichen Gesellschaft der Wissenschaften zu Göttingen
HGA	David Hilbert – Gesammelte Abhandlungen
HLN	Manuscript/Typescript of Hilbert Lecture Notes. Bibliothek des Mathematisches Insititut, Universität Göttingen
HM	Historia Mathematica
HPL	History and Philosophy of Logic
HSPS	Historical Studies in the Physical Sciences
ICM	International Congress of Mathematicians
JDMV	Jahresbericht der Deutschen Mathematiker-Vereiningung
JRAM	Journal für die reine und angewandte Mathematik
JRE	Jahrbuch der Radioaktivität und Elektronik
JSHS	Japanese Studies in the History of Science
JSL	Journal of Symbolic Logic
JSN	*Nachlass* Johannes Stark – Staatsbibliothek Berlin, Preußischer Kulturbesitz.
LCP	Collected Papers of Hendrik Anton Lorentz
MA	Mathematische Annalen
MBN	*Nachlass* Max Born, Staatsbibliothek Berlin, Preußischer Kulturbesitz
MPIWG	Max Planck Institut für Wissenschaftgeschichte, Berlin
MZ	Mathematische Zeitschrift
PAWS	Königlich Preussische Akademie der Wissenchaften (Berlin) Sitzungsberichte
PB	Physikalische Blätter
PiP	Physics in Perspective
PZ	Physikalische Zeitschrift
SHPMP	Studies in History and Philosophy of Modern Physics
SHPS	Studies in History and Philosophy of Science
SiC	Science in Context
SN	Science Networks
STR	Special Theory of Relativity
SUB Göttingen	Niedersächsische Staats- und Universitätsbibliothek, Göttingen.
Trans. AMS	Transactions of the AMS
VDPG	Verhandlungen der Deutsche Physikalische Gesellschaft
VGDNA	Verhandlungen GDNA
ZMP	Zeitschrift für Mathematik und Physik
ZP	Zeitschrift für Physik

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