The American and the German Atomic Bomb Projects and Their Legacies

US-German WE-Heraeus-Seminar

01 – 06 June 2025

at the Physikzentrum Bad Honnef, Germany

WILHELM UND ELSE HERAEUS-STIFTUNG

Introduction

The Wilhelm und Else Heraeus-Stiftung is a private foundation that supports research and education in science with an emphasis on physics. It is recognized as Germany's most important private institution funding physics. Some of the activities of the foundation are carried out in close cooperation with the German Physical Society (Deutsche Physikalische Gesellschaft). For detailed information see https://www.we-heraeus-stiftung.de

Aims and scope of the US-German WE-Heraeus-Seminar:

This seminar will showcase new and important work on the German and the American atomic bomb projects and, by providing context and comparing the two cases, yield new insights and understanding of both these two very important historical events and their legacies for science, technology, politics, and culture.

The fear of a German atomic bomb drove the efforts by Americans, British and émigres to build the first American atomic bombs. The Soviet Union responded to the Manhattan Project and detonation of nuclear devices over the Japanese cities of Hiroshima and Nagasaki by creating their own atomic bomb. The American president Harry Truman reacted to the Soviet atomic bomb by ordering the development of an American hydrogen bomb, which led in turn to a Soviet hydrogen bomb and an escalating nuclear arms race. The postwar rivalry between the United States and the Soviet Union also became a political competition for the "peaceful uses" of the atom, which in turn led to nuclear proliferation.

This has all had a profound influence on the development of physics in America and Germany and other developed countries as well. Both governments have sought to steer scientists and scientific institutions towards specific types of research through investments in grants, equipment, and certain types of research centers. By both comparing the German and American atomic bomb projects and placing them in context, this seminar will shed light on these weapons and their consequences.

Scientific Organizers:

Prof. Dr. Dieter Hoffmann — Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany
e-mail: dh@fhi-berlin.mpg.de

Prof. Dr. Mark Walker — Union College Department of History
Schenectady, NY, USA
e-mail: walkerm@union.edu

Introduction

Administrative Organization:

Dr. Stefan Jorda
Mojca Peklaj

Wilhelm und Else Heraeus-Stiftung
Kurt-Blaum-Platz 1
63450 Hanau, Germany

Phone +49 6181 92325-11
Fax +49 6181 92325-15
E-mail peklaj@we-heraeus-stiftung.de
Internet: www.we-heraeus-stiftung.de

Venue:

Physikzentrum
Hauptstraße 5
53604 Bad Honnef, Germany

Conference Phone +49 2224 9010-120

Phone +49 2224 9010-113 or -114 or -117
Fax +49 2224 9010-130
E-mail gomer@pbh.de
Internet: www.pbh.de

Taxi Phone +49 2224 2222

Registration:

Mojca Peklaj (WE Heraeus Foundation)
at the Physikzentrum, Reception Office
Sunday (16:00 h - 21:00 h) and Monday morning

Program

Program

Sunday, 01 June 2025

16:00 – 21:00	Registration	
18:00	*BUFFET SUPPER and informal get together*	

Monday, 02 June 2025

08:00	*BREAKFAST*	
09:30 – 09:45	Organizers	**Opening Remarks**
09:45 – 10:00	Stefan Jorda	**The Wilhelm and Else Heraeus Foundation**
10:00 – 11:00	Alexander Blum	**Heisenberg's Research on Particle Physics during World War II**
11:00 – 11:30	*COFFEE BREAK*	
11:30 – 12:30	Ryan Dahn	**Pascual Jordan and Werner Heisenberg**
12:30 – 12:40	**Conference Photo (in front of the main entrance)**	
12:40 – 14:00	*LUNCH*	

Program

Monday, 02 June 2025

14:00 – 15:00	Rainer Karlsch	**The GRU Reports on the German Atomic Bomb: Facts or Fiction?**
15:00 – 16:00	Todd Rider	**Forgotten Creators of the German Atomic Bomb**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 17:30	Dieter Hoffmann	**The Berlin Imperial Institute for Physics and Technology (PTR) and the German Uranium Club**
17:30 – 18:00	*BREAK*	
18:00 – 19:30	*DINNER*	
19:30 – 21:00	Michael Gordin	**Nuclear History Beyond Manhattan**

Program

Tuesday, 03 June 2025

08:00	*BREAKFAST*	
09:00 – 10:00	Manfred Popp	**He Who Makes No Mistakes Never Makes Anything – An Error Record of the German Uranium Club 1939 – 1945**
10:00 – 11:00	Piet de Klerk	**Bohr/Wheeler, Frisch/Peierls and the German nuclear programme 1939-1945**
11:00 – 11:30	*COFFEE BREAK*	
11:30 – 12:30	Joseph McCauley	**Predictions of Critical Radii for Reactors and Bombs 1939-45**
12:30 – 14:00	*LUNCH*	
14:00 – 15:00	Cameron Reed (ONLINE)	**The Frisch-Peierls Memorandum. The Physics, Effects, and Ethics of Nuclear Weapons: March 1940**
15:00 – 16:00	Patrick Park	**Myths of German Graphite**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 17:30	Patrick Park	**Nuclear Forensics of the B8 Pile**
17:30 – 18:00	*BREAK*	
18:00 – 19:30	*DINNER*	
19:30 – 21:00	**Movie: „Väter der 1000 Sonnen“ (Fathers of the Thousand Suns), DDR 1989 (with English subtitles)**	

Program

Wednesday, 04 June 2025

08:00	*BREAKFAST*	
09:00 – 10:00	Carola Sachse	**The (Non-) Participation of the Max Planck Society (MPS) and its Scientists in the Spanish Nuclear Program**
10:00 – 11:00	Luisa Bonolis / Adele La Rana	**Nuclear Fission in Rome 1939-1946**
11:00 – 11:30	*COFFEE BREAK*	
11:30 – 12:30	Andreas Heinemann-Grueder	**The Soviet atomic bomb and its lasting impact on Soviet and Russian military research**
12:30 – 14:00	*LUNCH*	
14:00 – 15:00	Zaiqing Fang	**China's Atomic Bomb: Development, Strategic Implications, and International Perceptions**
15:00 – 16:00	Eliza Gheorghe	**The Evolution of Nuclear Industries and Nuclear Markets**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 17:30	Mark Walker	**Heisenberg, Oppenheimer, and the Bomb**
17:30 – 18:00	*BREAK*	
18:00 – 19:30	*DINNER*	
19:30 – 21:00	Ulf von Rauchhaupt FAZ, Germany	**Roundtable Discussion**

Program

Thursday, 05 June 2025

08:00	*BREAKFAST*	
09:00 – 10:00	Michael Wiescher	**Nuclear Astrophysics and the Bomb**
10:00 – 11:00	Joseph Martin	**Hanging on the Glamorous Atom: Post-Manhattan Nuclear Research at the University of Chicago**
11:00 – 11:30	*COFFEE BREAK*	
11:30 – 12:30	Sarah Robey	**The First Duty of a Sovereignty Is to Protect Its People': Citizenship and Survival in the Atomic Age**
12:30 – 14:00	*LUNCH*	
14:00 – 15:00	Jacob Hamblin	**America's Global Gamble with Peaceful Nuclear Technology**
15:00 – 16:00	Elisabeth Roehrlich	**The Establishment and Evolution of the International Atomic Energy Agency (IAEA)**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 17:30	**Poster Session**	
17:30 – 18:00	*BREAK*	
18:00 – 19:30	*HERAEUS DINNER*	
19:30	**Video: "Reconstructing Françoise: The Gender of Nuclear Things"**	

Program

Friday, 06 June 2025

08:00	*BREAKFAST*	
09:00 – 10:00	Dolores Augustine	**Nuclear Fears/Nuclear Utopias in the Mass Media of the Federal German Republic and German Democratic Republic, 1945 – 1970**
10:00 – 11:00	Christian Goetter	**From Nuclear Bombs to Bazookas. Public Perceptions of Explosions in Nuclear Power Plants**
11:00 – 11:30	*COFFEE BREAK*	
11:30 – 12:30	Organizers	**Final Discussion**
12:30	*LUNCH*	

End of the seminar and departure

For participants leaving on Saturday a self-service breakfast will be provided on Saturday morning.

Posters

Poster Session, Thursday, 5 June, 16:30 h (CET)

Arian Elias van der Bent / Stefan Fischer	**From Farm Hall to Alswede**
Sandra Klos	**Possibilities and Dangers of Radiation for Pregnant Women, 1900-1945**
Vaishali Krishnakumar Velammal	**Peenemünde and the Atomic Legacy-Tracing the Roots of Missile and Nuclear Warfare**
William Nuttall	**Germany and Uranium in WWII**
Thomas Rose	**Gernot Zippe, Centrifuge Research in Tyranny, Democracy and Economy**
Roland Sadler	**Karl-Heinz Höcker**
Michael Schaaf	**Between bees and silk: Uranium research in Celle 1944-45**
Michael Schober	**Richard Herzog (1911-1999): his Contributions to Mass Spectrometry and Involvement into the "Uranprojekt"**
Matthias Uhl	**Soviet intelligence sources on the German nuclear weapons program**
Louis Wick	**The atomic bombs on Hiroshima and Nagasaki 1945 in movies - Polyperspective and the struggle for sovereignty of interpretation**

Abstracts of Lectures

(in alphabetical order)

Nuclear Fears/Nuclear Utopias in the Mass Media of the Federal German Republic and German Democratic Republic, 1945 – 1970

Dolores L. Augustine[1]

Mutual nuclear deterrence has often been taken to be an immutable constant of international relations since the end of the Second World War, based on logic and self-preservation instinct. But what if it is something much more fragile, the product of discussion, debate, and cultural trends—which *can* change—along with the politics they engender? This paper takes the importance of popular opinion very seriously. And where better to study the formation of popular opinion than in the two Germanies, home to much of the basic research that had gone into the development of nuclear technologies, two countries seeking a new beginning after the Nazi era, but also scarred by recent experiences of the Second World War and sitting astride the Iron Curtain?

This paper centers on the quantitative and qualitative results of a content analysis of narratives and images of nuclear technologies in two highly popular magazines, the West German *Stern* magazine and the East German *Neue Berliner Illustrierte*. My purpose is not to make an exact East-West comparison, but to highlight major narratives and important shifts over time. From the 345 articles in around 2,000 (undigitized) issues of these two publications that I evaluated, I present examples that illustrate important trends. I augment these results with USIA reports on American "Atoms for Peace" exhibitions, HICOG (High Commission for Occupied Germany) reports, newspapers, comic books, and East German radio and television programs.

Dividing the analysis into three periods: 1945-1953 (the Stalin era and early high point of the Cold War), 1954-1957 (the Atoms for Peace era), and 1958-1965 (the Berlin Crisis era), this paper shows that both East and West German media developed growing independence, while reflecting deep fears of nuclear war. Though highly constrained by authoritarian strictures, NBI reveals non-Communist influences of various sorts in its coverage of nuclear technologies, as well as a sense that the common person's interests did not lie in East-West nuclear confrontation.

[1] Professor emerita, Department of History, St. John's University, 8000 Utopia Pkwy., Queens, New York 11439. augustid@stjohns.edu.

Heisenberg's Research on Particle Physics during World War II

Alexander S. Blum
Munich Center for Mathematical Philosophy

In the years 1942-1945, while his primary occupation was leading the German Nuclear Project, Heisenberg continued to pursue his foundational interests in what he called the „Problem of Elementary Particles“: how to construct a consistent quantum theory of continuous fields at short distances without running afoul of the infinities that had haunted all such theories since the late 1920s. I will describe the novel S-Matrix approach that Heisenberg devised in war-torn Berlin, his discussions on the new approach with colleagues from the Netherlands, Denmark and Switzerland. I will also hint at the S-Matrix approaches long, and often underestimated, after-life in postwar theoretical physics.

Best Frenemies: Werner Heisenberg, Pascual Jordan, and the Politics of Memory

Ryan Dahn[1]

[1]*American Institute of Physics, College Park, Maryland, USA*

Close collaborators during the quantum revolution of the 1920s, Werner Heisenberg and Pascual Jordan were never close friends. The former almost always overshadowed the latter: Heisenberg was suave, charming, and received plum positions in Leipzig and Berlin; while Jordan was a loner with a severe stutter who remained stuck in provincial Rostock. Although only Jordan joined the party, the two were nevertheless political allies during the Nazi era: Both aimed to sideline the rabidly antisemitic Aryan physics movement and to secure financial support from the regime for academic physics.

I argue that the splintering of their alliance after the war—and Jordan's continued association with far-right politics—helped Heisenberg emerge as a prominent public intellectual of the politically moderate persuasion. The furor in 1957 surrounding the Göttingen Manifesto, which urged West Germany to abandon attempts to arm the Bundeswehr with nuclear weapons, was a crucial turning point. Heisenberg was one of the manifesto's signatories, while Jordan became its most prominent critic—and, for that reason, was ultimately catapulted into the Bundestag as a staunchly anticommunist representative for Konrad Adenauer's Christian Democratic Union.

The kerfuffle crystallized how the two would be viewed in historical memory: Heisenberg was to be seen as a well-intentioned physicist who naively blundered into working for the regime out of love for his country, while Jordan became stamped as an unrepentant, warmongering Nazi true believer. Ironically, I argue, Jordan helped "denazify" Heisenberg in the public sphere.

China’s Atomic Bomb: Development, Strategic Implications, and International Perceptions

Zaiqing Fang [1, 2]

[1] Institute for the History of Natural Science, Chinese Academy of Sciences, Beijing, China

[2] Department of History, East China Normal University, Shanghai, China

The Chinese atomic bomb project was a landmark in the country’s modernization of military technology and geopolitical strategy. This talk explores the historical development of China’s nuclear weapons program, from its initiation in the 1950s to the first successful test in 1964. It examines the scientific, political, and international factors that shaped the program, including Soviet assistance and subsequent withdrawal, domestic scientific efforts, and Cold War dynamics. The presentation also discusses the strategic implications of China’s nuclear capability and how it was perceived by global powers, particularly the United States and the Soviet Union. Finally, the talk situates the Chinese experience within the broader context of nuclear history, comparing it with the American and German atomic bomb projects in terms of technological development, security concerns, and political narratives.

The Evolution of Nuclear Industries and Nuclear Markets

Eliza R. Gheorghe[1] Sonja D. Schmid[2]

[1] International Relations Department, Bilkent University, A-305, Universiteler Mahallesi 1598Cadde Merkez Kampus, Ankara, 06800, Turkey

[2] Department of Science, Technology, and Society, Virginia Tech, 900 N. Glebe Road Arlington, VA 22203

Understanding the role of technology characteristics and market dynamics is critical for assessing the development of the global nuclear industrial complex. This paper represents a chapter for the Cambridge History of the Nuclear Age and aims to offer an overview of the evolution of nuclear industries and markets, focusing on the origins, diffusion, and regulation of nuclear technology. We begin by exploring the initial designs and technical options available to states, followed by an analysis of distinct waves of nuclear technology diffusion. We analyze the creation of a global nuclear industrial complex, which encompasses manufacturing enterprises, R&D activities, and infrastructure for both civilian and military applications. We then emphasize how the nuclear market facilitates exchanges of nuclear materials, technologies, and expertise and how the globalization of the nuclear market unfolded in three stages: rapid expansion (1946-1974), slowdown (1975-1990), and contraction (1991-present). We discuss the impact of early nuclear export policies, such as the U.S. Atomic Energy Act and the Soviet "Peaceful Atom" program, and the role of international organizations like the IAEA and Euratom. We also examine the competitive dynamics between suppliers and the strategies employed by buyers to secure better deals. The case studies of East Germany and India illustrate the challenges and successes in establishing nuclear industries, emphasizing the importance of strategic choices and negotiating skills. East Germany's reliance on Soviet technology and limited industrial capacity led to the failure of its nuclear program, while India's adept use of the global market and pursuit of self-reliance enabled it to develop a robust indigenous nuclear industry. We conclude by highlighting the interconnectedness of nuclear technology evolution and market dynamics, and the varying outcomes for different countries based on their political, economic, and industrial contexts.

From Nuclear Bombs to Bazookas. Public Perceptions of Explosions in Nuclear Power Plants

C. Götter

Institut für Geschichtswissenschaft, TU Braunschweig, Braunschweig, Germany

In this paper, Christian Götter argues that the idea that nuclear power plants could explode like nuclear bombs, which was rather prominent in public debates about nuclear power plants in Great Britain and, especially, the Federal Republic of Germany, was not originally brought up by critics of nuclear power. On the contrary, it was originally introduced and repeated by the technology's proponents, who used it as a red herring, a dummy position that could easily be refuted and that, possibly, had its roots in their eagerness to distance the 'peaceful' reactor technology from the military weapons programme.

Nuclear power's critics, on the other hand, were much more concerned about other kinds of explosions in connection with nuclear reactors that were much harder to dispel: They were worried, to different degrees dependent upon time and place, about nuclear power plants as targets in times of war, about atomic reactors being accidentally hit by military planes during exercises in times of peace, and about nuclear installations being targeted by terrorists.

To make this argument, Christian Götter draws on the public debates around six nuclear power plant sites in Britain and Germany that were part of a study he undertook for his habilitation project: Hinkley Point in Somerset, Oldbury-on-Severn in Gloucestershire, Torness in East Lothian, Biblis in Hesse, and Stade and Lingen in Lower Saxony.

Nuclear History beyond Manhattan

M. D. Gordin

Princeton University, Princeton, New Jersey, USA

For a series of valid, but contingent, reasons, nuclear history has been dominated by the exemplar of the Manhattan Project. Decades of research on other nations' nuclear histories has enabled a more comprehensive interrogation of the drawbacks of this model. Even when historians attempt to de-center the United States' case as paradigmatic, all later instances of nuclear proliferation have been measured (at least implicitly) by a set of yardsticks calibrated to it. There are many reasons to question the naturalization of this baseline, since it took place under conditions that did not obtain for any other weaponized fission program, including: the 1942–1945 project was extremely fast; there was no other extant nuclear power observing its actions and trying to subvert them; and it resulted in battlefield use of the weapon. This presentation explores what would happen to nuclear historiography if we were to bracket the American case as *exceptional* and explore comparisons with different baselines, such as the German wartime uranium program, the early Soviet nuclear complex, the Israeli and Pakistani proliferations, and especially several programs that began but then stopped before testing or full development of munitions. One implication of this approach is that the German uranium program looks far less like an outlier that needs to be explained *sui generis*, and various common features of state-directed military science are set in relief.

America’s Global Gamble with Peaceful Nuclear Technology

Jacob Hamblin

This paper will link the Heraeus seminar’s concerns about bomb programs with wider concerns about nonproliferation in the era of peaceful nuclear programs after World War II. It will draw out some of the lessons of my book The Wretched Atom, which investigated the promotion of peaceful nuclear technologies in the so-called developing world. It will connect these concerns directly with the overall themes of the seminar, while also provoking questions about postwar international apparatus for surveilling nuclear programs.

The Soviet atomic bomb and its lasting impact on Soviet and Russian military research

Prof. Dr. Andreas Heinemann-Grüder

CASSIS, University Bonn, Römerstr. 164, 53117 Bonn, Germany aheinem@uni-bonn.de

The Soviet atomic bomb projects exemplify the rise the Soviet Union and the sources of its decline. The nuclear bombs served as the most salient indicator of die Soviet Union’s war-time mobilization capacity and its superpower status. Nuclear energy embodied the scientific and technological capabilities in the rivalry with the West. The first Soviet atomic bomb project laid the foundations for a vast, secret and privileged military research infrastructure, which was exempted from the usual economy of shortages, patronage, and favors. Once a military research project was launched, the (often Jewish) researchers were by and large exempted from prosecution -- as long as they did not fail. They enjoyed prestige and comparatively high living standards. Although espionage increased the learning curve and saved precious time, academic competition was fierce, rapid upward mobility was possible and a tangible reward for ambitious young scholars. In the early stages, technologies from the Soviet atomic bomb project spilled over into the civic sphere and contributed to Soviet advances in energy production and infrastructure development. The forced labor of the Archipelago Gulag was part of the atomic bomb project as well as the rampant disregard for environmental pollution by radioactive waste, fallout and mining. For decades, the leading figures of the bomb project shaped the research and development directions as formulated by the Soviet Academy of Sciences. However, the secrecy and seclusion of the military research infrastructure contributed in the end to the demise of the Soviet Union, i.e., its lack of competitiveness since the 1970s. In the late Brezhnev era, military technologies rarely found their way into civil applications. The Stalinist model of resource mobilization proved outdated. Russia’s resurgence under President Putin relies heavily on nuclear, missile and air technologies developed in the early stages of the cold war, and it revived, in part, the privileged assignment of resources for military research and development. Putin’s regime is based on two pillars: the atomic bomb and orthodoxy.

The Berlin Imperial Institute for Physics and Technology (PTR) and the German Uranium Club.

Prof. (i.R.) Dieter Hoffmann

Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany

My talk will deal with the special position of the Berlin Imperial Institute for Physics and Technology **(**Physikalisch-Technische Reichsanstalt, PTR) within the German Uranium Club and provide an overview of its contributions to the "uranium problem." In doing so, I will draw on the preparatory work done by Mark Walker and Reinhard Karlsch some years ago. The focus will be on research into phosphorescent radioactive substances and the substitution of radium by other radioactive elements, as well as the development of new types of neutron sources. The role of the PTR and in particular its Department of Atomic Physics (and Physical Chemistry), founded in 1939 first, as a competence center for neutron physics, precision measurements and the development of specific measuring devices as well in the context of German uranium research will be a particular focus of my contribution.

Fact or Fiction? The GRU reports on German nuclear tests in March 1945

Rainer Karlsch (Berlin)

In the first part of the lecture, twenty years after the publication of “Hitler's Bomb”, we will look back at some of the results of the debate at the time. The insights that could be gained from previously unknown German and Russian files and Erich Schumann's estate will be named. The theses from “Hitler's Bomb”, which did not stand up to critical scrutiny, are also addressed.

The second part presents the GRU reports of November 1944 and March 1945, the Kurchatov letter to Stalin of March 30, 1945 and the Flerov mission to Germany in May/June 1945. To date, the Russian sources on the status of German atomic research have not been adequately evaluated. This applies above all to the design plan for an implosion bomb. Regardless of whether the tests actually took place as described in the GRU reports, these sources raise questions that cannot be answered by narrowing the focus to the uranium club.

The reports about an alleged small German nuclear test did not change the direction of the Soviet nuclear project. Kurchatov had already committed his institute to the construction of a plutonium bomb based on American design plans in the spring of 1945. After the war, Soviet special forces found uranium metal, uranium compounds, heavy water and more in Germany, but no large-scale plant for the production of fissile material.

To this day, it is still unclear who the intellectual fathers of the plan to build an implosion bomb were and where the fissile material for the tests came from. In my opinion, it is more historically expedient to investigate this further than to perpetuate the debates about the unwillingness or inability of the leading figures in German nuclear physics.

Bohr/Wheeler, Frisch/Peierls and the German nuclear programme 1939-1945

Piet de Klerk

University of Leiden, The Netherlands

After the Hahn/Strassmann experiments in late December 1938, understanding of the mechanism of nuclear fission developed quickly, culminating in the Bohr/Wheeler article in September 1939. Although that article was purely scientific, it contained important pointers for using fission energy for explosive purposes. The crux was Otto Frisch's question – how much ^{235}U would it take to make a bomb – which was to a large extent based on what he had learned from Bohr. This question led to the Frisch/Peierls memorandum and a year later to the MAUD report, which within weeks after its completion was known in Moscow. Without knowledge of the vast intelligence Moscow had collected by the summer of 1941, Soviet scientists asked themselves the same question as Frisch around that time and came up with a better answer. In Germany nobody knew the MAUD report and apparently nobody asked himself the question how much ^{235}U would be needed, and no work on a nuclear bomb was done.

Nuclear Fission in Rome 1939-1946

Giovanni Battimelli[1]

Luisa Bonolis[2]

Adele La Rana[3]

Following the discovery by Hahn and Strassman at the end of 1938, research on fission was pursued at the Physics Institute of the University of Rome, under the leadership of Edoardo Amaldi, the only member of the former group that in via Panisperna had discovered in 1934 artificial radioactivity induced by neutron bombardment, and, misinterpreting their results on uranium, missed the discovery of fission (Fermi had left Italy for good in December 1938, Rasetti would follow in the summer of 1939, Segrè was forced to emigration because of the racial laws, and Pontecorvo was in Paris and would leave France for the United States in 1940). Amaldi and collaborators were able to use for their researches the 1 MeV Cockcroft-Walton accelerator of the Istituto Superiore di Sanità, that had been in operation since mid-1939. Interesting results were obtained and published, discussed in particular through a steady correspondence with Bohr. Meanwhile, absolutely no interest was shown by the Italian political and military circles for the potential usefulness of fission studies for war related applications, and nothing was proposed, even on a very limited scale, similar to the uranium projects developed in the main belligerent nations. However, the Roman physicists had good reasons to believe that their German colleagues were involved in uranium research for military purposes; convinced that their country was, in Amaldi's words, "on the wrong side" of the war, and not willing to risk being involved in weapon-oriented projects, in the spring of 1941 they took the decision to reorient their researches toward the physics of neutron-proton scattering, abandoning their previous investigations on fission.

Projects for fission research for civilian purposes were resumed at the end of the war, while contacts with physicists in different countries were reestablished. In particular, archival documents and letters allow to add significant pieces to the story of the interactions between Italian and German nuclear scientists during the world conflict, and to follow the evolution of these relationships in the post-war period, foreshadowing the role that physicists like Amaldi would play in the reorganization of science in Europe.

[1] University "Sapienza", Rome, Italy (gianni.battimelli@gmail.com)
[2] Max Planck Institute for the History of Science, Berlin, Germany (lbonolis@mpiwg-berlin.mpg.de)
[3] University of Macerata, Italy & INFN Rome Division (adele.larana@unimc.it)

Hanging on the Glamorous Atom: Post-Manhattan Nuclear Research at the University of Chicago

Joseph D. Martin[1]

[1] Durham University, Durham, United Kingdom

The University of Chicago hosted crucial work for the Manhattan Project in the form of the Metallurgical Laboratory, where the first controlled nuclear chain reaction was generated. Following the war, Chicago sought to continue the research of the Met Lab, and secure its resources by founding three new research institutes, dedicated to nuclear physics, biophysics, and metals research. The legacy of Chicago's Manhattan Project work was a centerpiece for securing support for these institutes, which Chicago sought to do by appealing to industry, rather than government. Such a strategy did not strike everyone involves as the most prudent, however. Cyril Stanley Smith, the inaugural director of the Institute for the Study of Metals, cautioned: "You would find the financing of the Institute to be easier if it were presented in its true colors to the public, instead of attempting to hang it on the glamorous atom." This talk interrogates the debates about the scope of nuclear research that shaped post–World War II research at Chicago, and argues that this period, where the boundaries of nuclear research were labile, was a crucial one for the understanding of nuclear science in the postwar world.

Five Easy Pieces and Two New Results for Reactor and Bomb Theory 1939-45

Joseph L. McCauley
Physics Dept.
Univ. of Houston
Houston, Tx. 77204
jmccauley@uh.edu

Abstract

I present five clarifications and two new results from my four recent papers: (i) Heisenberg's G39/Farm Hall critical radius formula for a spherical reactor or a spherical bomb. (ii) Cancellation of an external neutron source by fission at criticality for spherical symmetry. (iii) Dimensional analysis plus boundary conditions determines the critical radius formula for a bomb or reactor. (iv) Perrin's and Flügge's 1939 fission multiplication factor includes absorption in the Perrin-Heisenberg 1939 reactor equation ('The Reactor Equation'). (v) Peierls' 1939 wrong fission rate term was corrected approximately by Frisch in 1940 by inserting a ridiculously large fission cross section. The two new parts are that Frisch's mathematical path to the Frisch-Peierls Memorandum critical radius prediction is now understood. Plus, we have calculated that the fully tampered cylindrical Haigerloch reactor should have been either critical or very nearly critical with a full dose of D_2O, compared with Heisenberg's 'spherical cow' estimate of a 29% larger radius needed. The Haigerloch cylindrical reactor was a 'spherical cow design' with *H=2R.*

Myths of Nuclear Graphite in World War II

Patrick J. Park[1], Sebastian Herzele[2], Timothy W. Koeth[3]

[1]Program on Science and Global Security, Princeton University, USA
[2]College of Polymer Engineering, HTL Bregenz, Austria
[3]Department of Materials Science and Engineering, University of Maryland, College Park, USA

We re-examine a common narrative that experimental errors by Walther Bothe in 1941 led Germany to abandon graphite as a reactor moderator during World War II. Chiefly, Werner Heisenberg claimed that Bothe mistakenly left air gaps in his apparatus and did not recognize the deleterious effect of boron. Some historians also claim Germany could have used graphite if they implemented the same thermal purification processes used in America. Using document-based nuclear archaeology, simulation codes, and original translations of German technical reports, we contest these three myths.

First, archival evidence shows Bothe believed graphite contained no boron based on a flawed spectrographic analysis by Herman Schüler. Wilhelm Hanle later corrected this, detecting significant boron in Siemens electrographite. However, due to strict compartmentalization of technical reports by the Heereswaffenamt, Bothe never learned of Hanle's findings before the military withdrew support for the nuclear project.

Second, our Monte Carlo neutronics simulations reproduce Bothe's results without modeling air gaps and verify Hanle's boron measurement—about 6.6 ppm by mass—in the Siemens graphite. This leads to a neutron absorption cross section more than double that of pure carbon. This made Siemens graphite genuinely unsuitable for moderating natural uranium, validating Bothe's conclusions given the data he had available.

Third, the belief that thermal purification alone enabled AGOT graphite is scientifically inaccurate. Heat cannot remove boron, but as it is useful in removing other mineral impurities, both AGOT and Siemens graphites did undergo similar thermal treatments. The key difference was feedstock: American physicists, with access to abundant petroleum sources, identified a uniquely low-boron coke from Kendall Oil Company in Pennsylvania, enabling the production of nuclear-grade graphite for Chicago Pile 1. In contrast, Germany only had coal-based feed cokes from the Ruhr with which to make graphite. These are naturally higher in boron and faced severe shortages due to competing demands for coke in steel production, rendering large-scale graphite manufacture infeasible.

Our comparative analysis reframes what has been thought a "failure" as a deliberate, rational decision given Germany's material constraints and wartime priorities. Our findings challenge simplistic technological determinisms in nuclear historiography and demonstrate the influence of industrial capacity and resource availability in early nuclear programs.

Deficiencies and mistakes of the German Uranium Project 1939-1945

Manfred Popp, KIT Karlsruhe

The seminar paper focuses on the deficiencies and mistakes that distinguish the uranium project from other successful technology developments during World War II.

Ref. Manfred Popp, Piet de Klerk: he Peculiarities of the German Uranium Project 1939-1945, *J. Nucl. Eng.* **2023**, *4*(3), 634-653; **https://doi.org/10.3390/jne4030040**

The Frisch-Peierls Memorandum of 1940: Exploring the Physics, Strategy, and Ethics of Nuclear Weapons

B. Cameron Reed[1]

[1]Alma College, Alma, Michigan 48801 USA

The Frisch-Peierls memorandum of March 1940 was the first document to reach high government levels that described the technical basis of nuclear weapons; it is truly a foundational document of the nuclear age. This document was prepared by Otto Frisch and Rudolf Peierls, then refugee physicists at the University of Birmingham in Britain. The memorandum described the physics behind the possible creation of nuclear weapons utilizing a chain reaction with uranium-235, as well as the associated military, strategic, and ethical implications of such weapons. In effect, Frisch and Peierls wrote a script for the later Cold War. The memorandum made its way to the UK government's Committee on the Scientific Survey of Air Warfare, and initiated the establishment of that country's wartime nuclear program. This program would later merge with the US Manhattan Project, and Frisch and Peierls transferred to Los Alamos to participate in the work that culminated with the Trinity test and the bombings of Hiroshima and Nagasaki. I will give brief biographies of Frisch and Peierls, describe how the memorandum came to be prepared, review its physics content (which infamously contained a drastic underestimate of the critical mass), and survey its influence on the British and US wartime nuclear projects.

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Forgotten Creators of the German Atomic Bomb

Todd H. Rider[1]

[1]Rider Institute

thor@riderinstitute.org

5 Green Needles Road, Littleton, MA 01460, USA

Within the last three decades, thousands of pages of documents related to the World War II German nuclear program have been declassified and rediscovered in archives around the world; some have been declassified as recently as 2024. According to these archival documents, the German program was much larger and much more advanced than had previously been publicly understood. These historical statements from large numbers of independent, well-informed, reputable sources are highly consistent with each other and with the now publicly well-known scientific details of nuclear weapons programs. This presentation will give a brief overview of some of the information from these documents, and will also show numerous examples of files on the wartime German program that are still classified and withheld 80 years after the end of the war. The files that are available name dozens of sites all over formerly German-controlled Europe where nuclear work was known or strongly suspected to have occurred during the war. (Much more information can be downloaded from: https://riderinstitute.org/revolutionary-innovation/) In order to elucidate the true extent and history of the wartime German program, there is an urgent need for more researchers (1) to search archives around the world and to lobby for all files to be declassified and released, and (2) to conduct industrial archaeology and scientific analyses at sites where nuclear work may have taken place.

'The First Duty of a Sovereignty Is to Protect Its People': Citizenship and Survival in the Atomic Age

S. E. Robey
Idaho State University, Pocatello, United States

Sarah E. Robey's book, *Atomic Americans: Citizens in a Nuclear State*,[1] tells the story of how Americans adjusted to a world transformed by nuclear weapons. Faced with the constant specter of nuclear attack, Americans did so much more than duck and cover under elementary school desks in the decades after World War II. Instead, the dawn of the Atomic Age sparked a new wave of civic involvement centering on the twin goals of national and individual survival. By examining a range of sources from everyday American citizens alongside those of elite policymakers and physicists, Robey shows us how nuclear weapons ushered in a complex era of activism, action, debate, and dissent.

For this US-German WE-Heraeus-Seminar, Robey will present "'The First Duty of a Sovereignty Is to Protect Its People': Citizenship and Survival in the Atomic Age," which explores the postwar political legacies of the American atomic bomb project. Specifically, Robey argues that nuclear weapons created a new arena for Americans to discuss the rights, obligations, and responsibilities that defined the relationship between citizens and their state. The threat of nuclear war forced citizens and their leaders to confront difficult questions about national defense, governing transparency and accountability, individual responsibility, and democratic governance writ large. Against the backdrop of the emerging Cold War, such questions were ripe for debate. Robey argues that the Cold War arms race forced Americans to consider issues of *nuclear citizenship*, a term Robey uses to signify what it meant to be an American citizen under the pressures of the Atomic Age.

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[1] Sarah E. Robey, *Atomic Americans: Citizens in a Nuclear State* (Cornell University Press, 2022).

The Establishment and Evolution of the International Atomic Energy Agency (IAEA)

Elisabeth Roehrlich
Department of History, University of Vienna, Austria

Several international organizations deal with nuclear energy issues, but only one global institution centers around the various aspects of this technology: the International Atomic Energy Agency (IAEA). The creation of the IAEA was an American-led project and originally inspired by a speech that United States President Dwight D. Eisenhower presented to the United Nations General Assembly on 8 December 1953, known as “Atoms for Peace.” Four years later, and with participation from states across the world, the new agency opened its headquarters in the Austrian capital Vienna, close to the frontline of the two Cold War blocks. This presentation will trace the institutional history of the world’s key nuclear organization from its creation in the mid-1950s to its prominent role in major international security crises in post-Cold War times. Throughout its history, the IAEA had both promotional and inhibiting functions. It has been assisting member states in accessing civilian nuclear applications for various purposes, including power generation, medical treatments, food preservation, and insect pest control. In fulfilling these tasks, the IAEA seeks not to increase the military uses of nuclear technologies, and specifically to help prevent the emergence of new nuclear weapon states. The presentation will discuss how the IAEA managed this dual mandate of promotion and control and discuss why the historiography on the IAEA has judged its success differently.

The (Non-) Participation of the Max Planck Scientists in the Spanish Nuclear Program

Prof. (i.R.) Dr. Carola Sachse (Institute for Contemporary History, University of Vienna)

A few days after the atomic bombs were dropped on Hiroshima and Nagasaki, the Franco government in Spain publicly announced that it had learned its geopolitical lesson: only a country that possessed this weapons technology would be taken seriously as a military power in the future. In its search for scientific and technical expertise to develop its own nuclear programme, the Spanish government turned, among others, to the renowned nuclear researchers of the former Kaiser Wilhelm Society, which was renamed the Max Planck Society (MPS) in 1948. To this day, all sorts of rumours surround involvement of Max Planck Scientists in the Spanish nuclear programme, including the suspicion that their aim was to jointly develop nuclear weapons. My presentation will shed light on the actual cooperation between scientists from the Junta de Energía Nuclear (JEN) and the MPS, placing it in the international political and economic context of the Cold War.

Heisenberg, Oppenheimer, & the Bomb: Cycles of Hubris, Tragedy, and Redemption

Mark Walker

Dept. of History, Union College, Schenectady, NY USA

This essay will use cycles of hubris, tragedy, and redemption in order to compare and contrast the careers of two influential twentieth century theoretical physicists: Werner Heisenberg (1901–1976) and J. Robert Oppenheimer (1904–1964), thereby shedding light on the interaction between science, ideology, politics, and war.

Nuclear Astrophysics and the Bomb

Michael Wiescher

This talk will present the impact of the young field of Nuclear Astrophysics on the development of nuclear weapons. It also will discuss the impact of research in nuclear weapons on the emergence of new and lasting directions in the nuclear sciences.

Abstracts of Posters

(in alphabetical order)

From Farm Hall to Alswede

A. E. van der Bent[1] **and S. Fischer**[2]

[1] *Gymnasium der Stadt Rahden, Rahden, Germany*
[2] *Gymnasium der Stadt Rahden, Rahden, Germany*

Our School is only 14 km away from Alswede. Starting in January 1946, this small community housed 10 scientists, captured by ALSOS, who were first located in Farm Hall before transition to Germany. Starting from this, we launched a school project in 2024. The aim was to use this incident to teach students about the work of historians. Nine students volunteered to explore various questions: Why were the scientists brought to Alswede? How long did they stay there? What was their daily life like?
The students searched the correspondence and records of four of the ten scientists. Unfortunately, we were unable to obtain documents from all of them. We examined only the papers of Gerlach in the archives of the Deutsches Museum and the digitized records of Hahn, Heisenberg and von Laue held by the archives of the Max Planck Society. The students attempted to find everything that Gerlach, Hahn, Heisenberg, and von Laue wrote or received between January 3rd and June 30th, 1946. They also searched the correspondence between those scientists up to their deaths. This led them to a postcard from 1952 in which Bagge reports to Gerlach on a visit to Alswede and conveys greetings from the Albersmeyer family. Proving the internment's impact upon the scientists' later life.
In addition, we searched some local archives, got some records from The National Archives of the UK, and talked to a contemporary witness and a descendant. We discovered that the scientists were supposed to be housed at Château Hüffe. However, this was not unavailable due to problems with the electric light, as Hahn claims in his diary. Instead, the British had to return the castle to the Dutch baroness. The files also show that the scientists in Alswede were not monitored as strictly as the British originally planned or as Hüffmann postulated. As a matter of fact, the formerly interned scientists were able to move freely within the Kreis Lübbecke, made friends, and participated in village life. In addition, work was also carried out in Alswede. Von Laue, for example, continued to hold his regular colloquium, for which the scientists misappropriated the village's school's blackboard.

Possibilities and Dangers of Radiation for Pregnant Women, 1900-1945

By Sandra Klos, Friedrich-Alexander-Universität Erlangen-Nürnberg, Science, Technology and Gender Studies, Erlangen, Deutschland

Roentgen radiation has been used in medicine since Wilhelm Conrad Röntgen discovered it in 1895. Low doses of radiation were deemed harmless even for pregnant women. Roentgen rays were used to determine pregnancies early on and to learn more about the baby in utero. However, the high hopes of early radiologists were met with skepticism from the early geneticists. Roentgen sterilizations, castrations, and even abortions were widely practiced and led to much harm when children were nevertheless born after being exposed to high doses of radiation. Such "Strahlenkinder" is often presented with microcephaly, a condition where the head of the child is a lot smaller, and the child is often mentally challenged. During the Nazi era, 400,000 people were forcibly sterilized under a new eugenic law that enabled doctors to perform roentgen sterilizations on people that were considered genetically ill. This poster recounts this tumultuous history from 1900 to 1945 in Germany.

Peenemünde and the Atomic Legacy-Tracing the Roots of Missile and Nuclear Warfare

Vaishali Krishnakumar Velammal[1], Master Physics- Gottfried Wilhelm Leibniz University, Hannover, Germany. vaishalikumar0911@gmail.com

Abstract:

The poster will explore the overlooked connection between the V-2 rocket program at Peenemünde and the development of nuclear warfare technologies. Peenemünde, located on the northern coast of Germany, it is considered the **birthplace of modern rocketry**. The Peenemünde facility, under the direction of Wernher von Braun, produced the world's first long-range guided missile during World War II. During a visit to the museum I explored that the technological advancements made in rocketry, propulsion, and guidance systems were crucial in shaping the evolution of missile technology. After the war, many scientists from Peenemünde were brought to the U.S. and the Soviet Union, influencing both space exploration and the Cold War arms race. This presentation highlights how Peenemünde's innovations contributed to the development of intercontinental ballistic missiles (ICBMs) and nuclear delivery systems, marking a significant transition from conventional warfare to weapons of mass destruction.

V-2 Rocket Model display, Peenemünde museum

Keywords: Peenemünde, Missiles, Nuclear warfare, V-2 rocket, War, Scientist, Germany, US.

Germany and Uranium in WWII

William J. Nuttall

School of Electrical, Electronic and Mechanical Engineering, University of Bristol, UK

At the start of the war, Germany was in relatively a strong position concerning nuclear science and technology, but potential leadership in nuclear weapons development was badly undermined by scientific errors and the lack of a transition to a substantial national effort. As regards atomic weapons, from 1942 onwards the USA would surge ahead via the Manhattan Project. Germany's nuclear focus was on uranium. During the war there was a moderately substantial reactor programme based on natural uranium fuels. The benefits of enriched reactor fuels for future reactors were clear, but there is no compelling evidence that German interest in uranium enrichment ever transitioned from small scale science to large-scale engineering. The role of German industry in wider uranium processing is discussed, including the role of the vast chemical conglomerate IG Farben in supporting the small-scale enrichment experiments. There is an oft repeated, and heterodox, allegation that IG Farben was involved in industrial scale enrichment at its Monowitz complex which relied on forced labour from the Auschwitz concentration camp system. The orthodox view, however, is that the Monowitz facility was dedicated solely to chemical engineering including, importantly, attempts to manufacture a type of synthetic rubber known as “Buna”.

At the Nuremberg war crimes tribunal thirteen IG Farben defendants were convicted of various charges in 1948 and given sentences ranging between 18 months and 8 years (with credit for time served). The longest sentences, which were arguably lenient, went to Otto Ambros and Walter Dűrrfeld. both of whom had leadership roles in Auschwitz-related activities. The trial records are very extensive, running to many thousands of pages. The original microfilm records are now accessible digitally from the US National Archives and Records Administration [1]. These records are interesting when considering possible covert enrichment activity at the site. I am early in the research process, but it is apparent that the Monowitz facility was very large and complex. Thus far, however, I have seen nothing pointing to any uranium enrichment activity.

[1] NARA USA, *Records of the United States Nuremberg War Crimes Trial, United States of America v. Carl Krauch Et Al. (Case VI)*, (1976) available at: https://archive.org/details/IGFarbenTrialTranscripts

Gernot Zippe, Centrifuge Research in Tyranny, Democracy and Economy

T. Rose

FH Münster

A graduate seminar in the Department of Industrial Engineering and Management at Münster University of Applied Sciences examined various aspects of nuclear projects during the Second World War in the USA, Germany and the Soviet Union. (Management and project structures in the USA and Germany, comparison of the personalities of Groves and Oppenheimer, land acquisition in the Manhattan Project, Bohr and Heisenberg in Copenhagen, motivation of German and Soviet scientists to work on the Soviet bomb).

The case of Gernot Zippe was particularly interesting. He was a soldier in the German army, was taken prisoner of war in the Soviet Union and had to work for Stalin's bomb by developing centrifuges for uranium separation, eventually earning 6,000 roubles a month. He left the Soviet Union in 1956 and worked for two years in the USA as a consultant for centrifuges. From 1960 onwards, he developed centrifuges for various German and European companies. His designs are the basis for most of today's uranium enrichment plants. And through espionage, they laid the foundations for Pakistan's and probably Iran's nuclear projects.

How did he feel about his work and its application when he worked for various tyrannical, democratic and economic institutions?

Karl-Heinz Höcker

Dr. rer. nat. Roland Sadler (Univ. Stuttgart, Abt. f. Geschichte der Naturwissenschaften u. Technik)

In this poster, I will present the life and work of Karl-Heinz Höcker. The work is based on findings obtained primarily from the legacies of Karl-Heinz Höcker found in the archives of the University of Stuttgart, as well as those of Carl Friedrich von Weizäcker found in the archives of the Kaiser Wilhelm Gesellschaft in Berlin Dahlem.

Karl-Heinz Höcker is particularly interesting because he was involved in developing the theoretical basis for the Uranmaschine (uranium machine) together with Werner Heisenberg and Carl Friedrich von Weizsäcker.

After his graduation in 1939, Karl-Heinz Höcker became Carl-Friedrich von Weizsäcker's first doctoral student. He completed his doctorate in 1940 with a thesis on nuclear physics entitled „Wirkungsquerschnitte der Reaktionen zwischen Neutronen und Deuteronen“. (“Cross sections of reactions between neutrons and deuterons”). There are also research reports from this year with a technical focus: „Berechnung der Energieerzeugung in der Uranmaschine“ (“Calculation of energy production in the uranium machine”) and later „Über den Wärmetransport aus der Uranmaschine“ (“On heat transport from the uranium machine”). This shows that, for Karl-Heinz Höcker, research and teaching in physics and technology were closely related from the very beginning.

After his military service, he transferred to the Institute for Theoretical Physics at the Reichsuniversität Straßburg in late 1942. There he was an assistant to Carl Friedrich von Weizsäcker. Karl-Heinz Höcker continued to work largely independently on topics related to the Uranmaschine. In 1943, he showed that a spatial lattice of atomic cubes in heavy water results in a higher neutron multiplication factor than an arrangement of plates. This cubic lattice was used as the basis for the last large-scale experiment in 1945 in Haigerloch.

The conclusion of this poster describes Höcker's work after the war at the University of Stuttgart. Höcker habilitated in 1948 with the topic: “Protonen als primäre Komponente der Kosmischen Strahlung” (“Protons as primary components of cosmic radiation”). In the summer semester of 1950, as a lecturer in theoretical physics, he gave the very first lecture on nuclear technology in the Federal Republic of Germany. Starting in the mid-1950s, he gave a lecture on the topic: “Die Explosion der Atombombe” (“The explosion of the atomic bomb”). I plan to undertake a detailed examination of his work, particularly in nuclear physics, as part of a doctorate in GNT.

Between bees and silk
Uranium research in Celle 1944-45

Michael Schaaf
Deutsche Internationale Schule Cape Town, South Africa

Abstract

In autumn 1944 two groups of the German 'Uranium Club' escaped the ever–approaching front and moved to Celle, a small medieval town between Hannover and Hamburg. One group was led by Henry Albers, extraordinary professor for chemistry at the Technical University of Danzig. He and his team examined the properties of volatile uranium compounds. Another group, led by physical chemist Paul Harteck and his assistant Wilhelm Groth from the University of Hamburg, worked on enriching U-235 with an ultracentrifuge. Although their laboratories were not exposed to any air raids, their work suffered from procurement problems and the omnipresent poor supply situation.

Richard Herzog (1911-1999): his Contributions to Mass Spectrometry and Involvement into the *Uranprojekt*

<u>M. Schober</u>[1], L. Erker[2], J. Irrgeher[1] and T. Prohaska[1]

[1] Lehrstuhl für Allgemeine und Analytische Chemie, Department für Allgemeine, Analytische und Physikalische Chemie, Montanuniversität Leoben, Leoben, Austria
[2] Dokumentationsarchiv des österreichischen Widerstandes, Vienna, Austria

Mass spectrometry is an important technique in the history of science and in the context of nuclear research. The analysis principle is based on the separation of ions by their mass to charge ratio (m/z) in electric and magnetic fields to detect analytes according to their different masses. For nuclear research, mass spectrometry is foremost used to detect the isotopic composition or to accumulate isotopes from a chemical element.

In the historical context of the development of nuclear weapons during World War II (WWII), mass spectrometry played an indispensable role for the enrichment of nuclear material. At the nuclear program of the United States of America (Manhattan Project), the calutron process was used to separate and accumulate uranium isotopes through electromagnetic fields for enrichment. The aspect of uranium enrichment was also a critical issue in the plans of the German nuclear program (*Uranprojekt*) to generate usable nuclear material for the so-called *Uranmaschine*. Hereby, it seems, Austrian scientists – with their expertise in mass spectrometry – were attractive and of interest for the efforts of the *Uranprojekt*.

In the interwar period, a group of scientists around Josef Mattauch, Richard Herzog, and Hugo Bondy developed new mass spectrometers at the University of Vienna. While Bondy was excluded from the university due to the racial laws of the National Socialists and Mattauch left the university, Herzog stayed at the University of Vienna and advanced his career. During wartime, he worked on the separation of uranium isotopes by mass spectrometry.

This poster provides an introduction into the fundamentals of mass spectrometry and an overview of its development at the University of Vienna in the 1930s. The main focus of the poster lies on the history of mass spectrometry, highlighting the biography and career of Richard Herzog before, during, and after WWII.

Soviet intelligence sources on the German nuclear weapons program

Dr. Matthias Uhl – Max Weber Netzwerk Osteuropa, Vuorikatu 5, 00100 Helsinki, Finland
Riitankuja 5 C2 6
00840 Helsinki

The intended poster will present Soviet sources, mainly from the military intelligence service GRU, on the German nuclear weapons program. The intended poster will present Soviet sources, mainly from the military intelligence GRU, on the German nuclear weapons program. The Soviet side was well aware of the German Reich's efforts to develop a nuclear weapon. The Soviet military intelligence service played a particularly important role here, as it was probably the only Allied intelligence service to have high-level sources in this area, which was strictly guarded by the SS and Himmler. On March 23, 1945, the head of military intelligence, Lieutenant General Ivan I. Ilyichev, informed Stalin about two German tests of nuclear explosive devices that had been carried out shortly before at a military training area in Thuringia. The GRU chief, Ilyichev, concluded: "There is no doubt that the Germans are testing bombs that have a high destructive power. If they succeed in producing such bombs in sufficient quantities, they will have a weapon that can slow down our attacks."

The GRU documents are supplemented by further sources from other Soviet intelligence.

These sources are designed to provide information about the Soviet Union's knowledge of nuclear weapons development in Germany. These documents allow us to draw conclusions about the actual state of German work in this area.

The atomic bombs on Hiroshima and Nagasaki 1945 in movies - Polyperspective and the struggle for sovereignty of interpretation

Louis Wick/ University of Stuttgart / Stuttgart/ Germany

Filmic reconstructions of the atomic bombs dropped on Hiroshima and Nagasaki in August 1945 have historiographically been vastly neglected. The aim of this study is therefore to investigate the narrative means used by filmmakers to translate complex facts into public discourse, which prevailing political interpretations are reproduced in the process and what space the particular discourse on the second atomic bombing of Nagasaki occupies in comparison to Hiroshima. 57 films from 15 countries were identified, dealing directly with the historical events. From these, 29 films were selected that reconstruct the moments of the bombings and the detonations (8x USA, 13x Japan, 8x other countries). Recurring motifs appear as constellations of different machines, mostly clocks indicating the time of the detonation and B-29 aircrafts, and visual sequences such as preparations in the cockpit or scenes of everyday life on the ground immediately before the bombings. Almost all of the films can be assigned to dominant political interpretations at the time of their release. During the occupation, US censors established the *orthodox* view that the bombings could be justified strategically and ethically by the potential number of lives saved. Immediately afterwards, the first movies were made in Japan that portrayed the effects of the Hiroshima bombing and the civilian damage. From the mid-1980s, the focus gradually shifted to biographical family stories, environmental and health issues. Also in American movies since the 1990s, a more empathetic reading has prevailed regarding the victims of the bombings and the emotional conflict of the scientists at Los Alamos. Strikingly, in American as well as Japanese movies, the atomic bombing of Nagasaki is depicted significantly less than the one at Hiroshima. In the rest of the world, the events were largely commercialized and adapted for romantic dramas, especially among (aspiring) nuclear powers (France/India/USSR). Only two films exhibit truly polyperspective representations: The German TV production *Ende der Unschuld* (End of innocence, 1991) and the Canadian-Japanese TV production *Hiroshima* (1995). In the light of rapidly advancing generative artificial intelligence, polyperspective studies of military conflicts and the integration of filmic sources into the historiographic discourse will become increasingly important in order to compare different perspectives and to point out attempts to claim sovereignty of interpretation.