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The Civil Clause: No military research in civilian research institutions

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The Science4Peace Forum

Abstract

The discussion about military research in civilian research institution has gained momentum recently. In Europe, the research center CERN in Geneva has in its constitution written, that " the Organization shall have no concern with work for military requirements", in Germany so-called Civil-Clauses have been issued as a self-declaration and self-commitment of many institutions and universities to work only for civilian and peaceful goals. While there was common agreement on research for peaceful and civil purpose after World War II, recently the discussion of the usefulness of Civil Clauses has been put on the table by the EU commission as well as national governments.

A dangerous development is taking place in science policy. Immediately followed by the invasion of Ukraine, Russian and Belorussian scientists were sanctioned, cooperations were stopped and scientists were excluded from participating in civilian research projects. Attempts to open research institutions, which were in the past a symbol for civilian research, for military purposes, is another step in separating the science communities and creating enemies-images, while giving up the universal feature of science.

Triggered by the announcement of the directorate of DESY to start a discussion whether opening of the research institution for military research in June 2024 and by a white paper of the EU commission from Jan 2024, the Science4Peace Forum started a qualified discussion with a panel discussion in September 2024 on different aspects of Civil Clauses.

In this paper we try to collect arguments for keeping the purely civilian and peaceful focus of public (non-military) research and argue that scientific progress for the benefit of humanity can only be achieved by collective efforts of all countries and nations. A restriction of research to those countries which share the same political values will create only anger, mis-trust and further conflicts, will result in another arms-race and is clearly counterproductive to solving the most important problems humanity is facing now: climate change, poverty and, most of all, the too many wars.

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1 Introduction

In January 2024, the EU Commission issued a *White Paper* [1] calling for a special effort to promote research with both civil and military objectives (dual-use research). Similarly, the German Ministry of Education and Research (BMBF) released a *Position Paper* [2] in March 2024 calling for the deepening of cooperation between civilian and military research institutions and for establishing *funding incentives for increased cooperation between civilian and military research*. In its annual report for 2024, the German *Research and Innovation* Expert Commission proposed dissolving the previous separation between civil and military research [3] .

This reorientation is in fundamental contradiction to the spirit of civilian research following the experiences of World War II: the Science Council of Japan vowed in 1950 *to never become engaged in scientific research for war purposes* [4]. At the international research center CERN, where the Higgs Boson was found in 2012, the convention of 1954 [5] demands explicitly that it *shall have no concern with work for military requirements*, and at the Helmholtz Research Center DESY in Germany the guiding principles [6] stipulate that *research pursues goals that are peaceful and serve civil society*. Moreover, many universities and institutions have adopted so-called civil clauses [7] to focus voluntarily their research and teaching to purely civilian and peaceful purposes. With the opening of civilian research to military research, international cooperation is called into question, research funds are withdrawn from civilian research and made available for military research as formulated in a statement [8] of the German University Rectors' Conference (HRK)).

At DESY the directorate has initiated a discussion in June 2024 [9] whether the restriction of research to civilian and peaceful purposes is still adequate, or whether military research should be allowed at the laboratory. This initiative triggered a lot of discussion and protest at DESY, where shortly after this announcement a petition [10] was launched to protest against this move. The topic has also found attention in the national [11] and international press [12].

We are facing significant changes in science policy:

- **Sanctions in Science** Immediately after the start of the invasion of Ukraine, several science institutions in Europe initiated sanctions against Russian and Belorussian scientists. At DESY sanctions [13] imposed include a ban of common scientific publications as well as participation at scientific conferences, where Russian scientists participate under their institutional affiliation. The Science4Peace Forum has collected many arguments against excluding scientists from international cooperations [14]. At CERN, after invasion of Ukraine, collaborations were put on hold. At the end of 2023 the CERN council decided to not to prolong cooperation agreements with Russian and Belorussian institutes after their expiry dates in 2024. The Science4Peace Forum has warned about the long term consequences of such a decision [15]. At least the cooperation of CERN with JINR was not cancelled, and is continuing but still under sanctions and restrictions. These steps marked a clear change in science policy, scientists from certain countries are risking to be excluded from scientific cooperation, a step which did not happen at international organizations like CERN before (only in 1993 Serbia and Montenegro were excluded from CERN based on a decision of the UN security

council [16, 17])

- **Role of science in geopolitical strategies** In a report *Security, Resilience and Sustainability* [18] from 2022 the increased role of science in security policy and military research is requested, but with caution *... if Germany positions itself too assertively [in increased spending for military], its current reputation as a peaceful nation could suffer.* In a report of Leopoldina and DFG from 2024 [19] it is argued, that *... in doing so, the claim is made that academic research can no longer be carried out solely for its own sake, but also bears responsibility for safeguarding our basic democratic order and other national values*. Further it is argued that *... as a result, science and innovative power are also increasingly identified in Europe and North America as a levers of geopolitical power in order to strengthen resilience and competitiveness in the sense of national security interests*. Even fellowships and student exchange are seen critically *... young Chinese scientists with a scholarship from the Chinese Scholarship Council (CSC) will no longer be admitted in the future ...* , as written in Ref. [19].

- **Opening civilian research facilities for military research - the civil clause** The discussion about civil clauses and the focus of civilian research institution on purely civilian research has gained momentum recently with a White Paper [1] of the EU commission, where it is argued that resources spend for purely civilian research are missing in funding for military (or dual-use) research. With the further discussion on increased spending for military (at the moment several EU countries increased their spending to 2% of GDP) and the request to increase the spending from 2% to perhaps 3.5 or event 5 %, the resources for pure civilian research will decrease, and institutions maybe forced to look for additional funding, for example by removing civil clauses and opening their research facilities for military dual-use research. While such an attempt might solve the short term funding, it leads dramatic and significant changes in science and research.

In this paper we will discuss these three topics in more detail, with the emphasis that science and especially fundamental science is universal and independent of any political and geo-political strategies. We will emphasize, that sanctions and restrictions in science are counter-productive, and lead only to further separation and confrontation, rather than helping solving international conflict. We argue, that science should play a role in international affairs such that the language of science is used to build bridges and dialogue, instead of banning communication. We also argue that successful science which can serve society and can help solving the most important problems of people must be international, including all countries, as well as that all results must be made available to the public, and by this is required to work only on civilian projects.

2 Sanctions in Science

3 Role of Science in Geopolitics

4 The Civil Clause: history and present

The Civil Clause was created from the experience of the connection of science with military and it's consequences in World War II, as a committment to perform research only for civil, non-military and peaceful purposes. In Germany the Civil Clause goes back to the founding of the Technical University of Berlin [20] in 1946 An overview of existing Civil Clauses in Germany is given in Ref. [21], a review of the experiences and future challenges is given in Ref. [22]. The Science Council of Japan declared in 1950, *its commitment to never become engaged in scientific research for military purposes* [4].

4.1 Some historical remarks on science in Germany. Author: M. Walker, John Bigelow Professor of History Union College, Schenectady, NY USA, M. Renneberg

German scientists had a strong and consequential relationship with militarism in the first half of the twentieth century. During the First World War, most German scientists served as regular soldiers, but a significant minority put their professional expertise to work on early radar systems, aerodynamics for aircraft development, and of course chemical weapons. The overwhelming majority of these scientists supported the German war effort uncritically. Here Albert Einstein was the exception who proved the rule. When Germany was defeated, most scientists, like most Germans, focussed more on the harsh terms of the Treaty of Versailles than what responsibility Germany shared for the war.

When the Nazis came to power in 1933, they began massive investments in rearmament. It is important to note, however, that during this period Hitler publicly insisted that he wanted peace, not war, and the rearmament was only so that Germany could protect itself. When the Second World War began with the invasion of Poland, most scientists, including those opposed to Nazism, were either drafted into the armed forces or found research and development projects that allowed them to serve the war effort as scientists. These projects were similar to those in other countries, like mines, submarines, radar, rockets, aeronautics, and even nuclear weapons. When the war turned against Germany after the defeat at Stalingrad and more and more German men were drafted, scientists came under even more pressure to find positions considered "indispensable for the war effort." When the war was over, the four victorious powers invited or sometimes kidnapped those German scientists whose research was of military interest. Here the most prominent example was Wernher von Braun and long-range ballistic missiles (for References and further reading see [23–25]

4.2 The Civil Clause in Japan. Author: Tatsujiro Suzuki, President, Peace Depot, Nagasaki, Japan

4.3 The Civil Clause in Germany. Author: J. Beullens

Two and a half months after the liberation of Germany from fascism on 8. May 1945 through Allied forces (its 80th anniversary taking place this year), a framework for the future of the German people was agreed upon at the Potsdam Conference. This included the famous four Ds: Denazification, Democratization, Decentralization and Demilitarization. As German schools and universities had played an essential part in the ideological indoctrination of children, the development of weapons-systems as well as pseudoscientific theories in favor of conquering "Lebensraum" [26], the Potsdam Agreement contained the following passage in its "Political principles": *German education shall be so controlled as completely to eliminate Nazi and militarist doctrines and to make possible the successful development of democratic ideas.* [27]

When the Technical University of Berlin (TUB) was to start up its activities again in 1946, the conscious decision was made not to label it a "reopening", to decisively make a cut with Nazi past [28]. A humanities faculty was founded to promote societal responsibility in science and the reflection of (natural and technical) scientists on the consequences of their work. To manifest this change in the way science should be performed, the institution was renamed: the *Technical High School of Charlottenburg* should henceforth be called the Technical University of Berlin. In a speech by British General Officer E.P. Nares at the opening ceremony [20], he makes clear the expectations that would now govern the university:

The implications of this change of name are simple but of vital importance. It should teach you that all education, technical, humanistic, or what you will, is universal: that is to say it must embrace the whole of man, the whole personality, and its first aim is to produce a whole human being, capable of taking his place responsibly beside his fellows in a community. Its second aim may be to produce a good philologist, a good architect, a good musician or a good engineer.

But if education does not assist the development of the whole personality it fails in its aim, and this Technical University must not fail in its aim. You cannot bring into this building only the technical part of your minds and leave the other parts of your personalities outside or hang them up with your hat and coat on a peg in the hall. You must bring to your work all that you have - your love of art, your religion, your philosophy of life as well as your technical capacities - and allow them to develop together with your work through your experience here and your contact with your teachers and fellow-students. [...]

This universality is necessary in education because only by cultivating the whole of himself can man acquire a sense of responsibility, and only by responsibility can freedom, peace and justice - that is the happiness of all men - be assured.

One of the first measures taken by the occupying forces in higher education to fulfil the principles of societal responsibility and peace was the institution of a ban against military research at TUB, which had participated in the research program for the development of the V2 rockets used to bombard London and Antwerp [29]. So the first civil clause in Germany was born as a direct consequence from fascist and militarist rule. This civil clause was reaffirmed in 1991 by the senate of TUB, *out of responsibility and because of the university's role before*

and during the Second World War, especially in armaments research [30].

Ten years later in 1956, the second civil clause was instituted at the newly built nuclear research centre in Karlsruhe. With the luckily failed Nazi "Uranprojekt" to build nuclear weapons still fresh in the minds of the Allies, pressure was applied on the Adenauer administration so that the institution should only follow peaceful objectives.

Broader efforts for demilitarization shaped the development of the new German basic law, which was passed in 1949. In its preamble it is stated that Germany should become "an equal partner in a united Europe" to "promote world peace" and its very first article declares the "inviolable and inalienable human rights" to be the basis for international coexistence. This includes article 26 of the Universal Declaration of Human Rights [31] concerning education, which asserts that

education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.

The preamble of the constitution of the United Nations Educational, Scientific and Cultural Organization (UNESCO) [32] affirms this goal, declaring

that since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed; That ignorance of each other?s ways and lives has been a common cause, throughout the history of mankind, of that suspicion and mistrust between the peoples of the world through which their differences have all too often broken into war; That the wide diffusion of culture, and the education of humanity for justice and liberty and peace are indispensable to the dignity of man and constitute a sacred duty which all the nations must fulfil in a spirit of mutual assistance and concern; [...]

In consequence whereof [the parties to this constitution] do hereby create [UNESCO] for the purpose of advancing, through the educational and scientific and cultural relations of the peoples of the world, the objectives of international peace and of the common welfare of mankind for which the United Nations Organization was established and which its Charter proclaims.

Thus, civil clauses are to be seen as the fulfillment of the fundamental principles underlying worldwide social, economic, ecological and cultural development. Their implementation in scientific institutions contributes to the building of mutual trust between nations. The possibilities of open dialog created by focusing on civil research are essential to promoting peace and amity between peoples: Those who talk with each other are less likely to shoot at each other. In times of increasing hostility and wariness between nation states, especially concerning scientific cooperation, civil clauses provide generalizable criteria for international collaboration not only with China but also with Turkey, Iran, Israel and the United States.

They are also a direct expression of the will for peace by the university members themselves: in Germany, the majority of civil clauses have been instituted after lengthy discussions between researchers, students and administrative staff in committees and senates, in part even by popular vote among the student bodies. This was the case e.g. at the University of Frankfurt. At the beginning of the previous decade student protests against the introduction of extra tuition fees as well as for the improvement of working and learning conditions

led to a discussion regarding the goal of research. The consensus emerged that universities and science cannot be truly free if financial constraints are in place which could force their opening up for military funded research. Freedom of science should be determined not only through negation of state interference but through the positive conception of enabling emancipatory and peace-minded work. Only in conjunction with the fulfillment of human dignity (Art. 1 German basic law) and the principle of a social state order (Art. 20) can freedom of science (Art. 5) truly flourish and be of use to all humankind.

This stands in stark contrast to current attempts by state and federal governments to undermine civil clauses. These top-down approaches are, in light of the historical developments outlined above, in open disregard for lessons learned from two world wars as well as the social and ecological challenges of our time. Geraldine Rauch, mathematician and rector of the Technical University of Berlin, summarized succinctly what is necessary instead:

The role of universities is not to settle military and political conflicts, but to carry out research and teaching in the interests of a more stable, social and sustainable world - this brings us all real security. [33]

4.4 German Science Institutions and Civil Clauses. Author: S. Brentjes

All major German science institutions are financed by the federal government and various of its ministries. The ministry responsible for education and research (changing its precise designation depending on decisions of the respective government), for instance, declared in 2020 that it supports exclusively civil research. The defense ministry, in contrast, also finances military research since the mid-1950s at civil research institutions such as the Fraunhofer Society. The vulnerability of the research institutions towards shifts in political orientation of a government has become very clear during the last years, when debates about civil clauses and military research have intensified. In 2014, the main German research institutions, the German Science Foundation (DFG), and the Leopoldina, the National Academy of Sciences, decided to create a "Joint Committee on the Handling of Security-Relevant Research" [34]. The foundational document reveals that the inspiration to this step came from the federal government in 2012. The government's main concern was of a geopolitical nature and mainly directed against China, first and foremost in areas of technology and trade. Only since 2022, the activity report's primary justification for the need to react to geopolitical changes became the threat of war coming allegedly from Russia [35]. The shift in political rhetoric and orientation of the federal government is followed explicitly in the preface of the presidents of the two institutions to the activity report of November 2022 [36]. Even more clearly is this new orientation expressed in the title of the report of 2024. While all previous reports were simply labeled Progress Report, the 2024 report published in March 2025, carries now the title "Scientific Freedom and Security Interests in Times of Geopolitical Polarisation" [37]. This development raises serious questions about the stability of the peaceful orientation of research at universities and research institutes represented through these two institutions and its partners - the Max Planck Society, the Helmholtz Society, the Fraunhofer Society, the Leibniz Society ? and therewith the role of civil clauses at those institutions that

adopted them in various forms.

The last four activity reports of the Joint Committee have primarily focused on issues arising from dual-use problems in the sciences, technology, in particular IT, AI, and biotechnology, plus medicine and psychology. Civil clauses were discussed as tools against military research. This focus of civil clauses was defined as insufficient for the broader dual-use issues that the Joint Committee means to address. A second problem seen with civil clauses by the Joint Committee on the basis of a paper by a junior legal scholar concerns their relationship to the German constitution. Depending on their specific formulations and their legal status as either a part of a law regulating the universities and comparable teaching and research institutions or as a voluntary declaration of a university, they may contradict Art. 5.3 of the constitution regarding the freedom of research.

The interesting aspect of the declarations and reports of the Joint Committee concerns the insistence on academic freedom in agreement with self-regulatory activities regarding dual-use issues. On the institutional level, such activities should be implemented by creating ethics commissions at each institutions, whose members should counsel researchers and research institutions about how to deal with dual use issues. Since all reports of the Joint Committee continue to emphasize freedom of research and teaching and the obligation to undertake such activities for the sake of improving human conditions, fostering peace, defending human rights, and protecting the environment, multiple spaces remain for integrating the existent civil clauses and their practical implementations into the sponsored development of responsible research and teaching with regard to dual use issues. It seems to be even possible to formulate new civil clauses in this broader framework. Such opportunities are rhetorically strengthened by the explicit condemnation of research for developing sanctioned weapons such as biological weapons or of research projects in explicit collaboration with armament industries with the caveat that military research is acceptable if the weapons are specialized to clean up the debris of wars such as land mines.

However, the increasingly confrontational language in the reports of the Joint Committee sends warning signals calling for a public debate of all aspects of dual-use issues beyond the limited circles of the meetings organized by the Joint Committee.

4.5 Civilian and military research in different countries

In the following we provide an overview on relation of military research at civil and public universities in different countries.

- **Belgium**
- **France**
- **Germany**

- **Greece**
- **Sweden**
- **Israel**
- **Italy**
- **Palestine**
- **Japan**

5 Science and Military: National and international Research Institutions

5.1 From Open Science to Military Secrecy: The Risks for DESY. Author: S. Glazov, DESY

DESY plays a crucial role in international cooperation. Historically, projects such as the HERA e-p collider benefited from extensive collaboration with numerous European countries, including France and Italy, as well as Russia (initially the USSR), the United States, and Japan. Over the years, DESY scientists have actively participated in major international collaborations at CERN and KEK, engaging with researchers from across the globe. With the commissioning of PETRA III, one of the largest synchrotron light facilities in the world, DESY became a major international hub to study fundamental phenomena in condensed matter, plasmas and molecules, and on the structure and function of complex materials to biomolecules and cells (Photon Science). While DESY is a national laboratory, it is widely recognized as a key international player, regularly reviewed by international committees that consistently encourage collaboration.

Peaceful scientific research conducted by scientists is fundamental to the development of humanity as a whole. Common fundamental goals foster a collaborative environment among researchers from diverse cultural and political backgrounds. The exchange of ideas between different scientific schools is crucial for innovation, promoting both the generation of new concepts and mutual respect for collective achievements. Open scientific hubs such as CERN, KEK, and DESY play an essential role in nurturing these interactions, strengthening the global research community.

International research is also vital for fostering trust among scientists from different nations. Historically, physicists' opinions have played a significant role in shaping governmental perspectives and promoting trust between nations. The end of the Cold War would not have been possible without Soviet leaders trusting that there was no need for ideological conflict with the West and recognizing that both sides shared fundamentally common values. The phone call between M. Gorbachov and A. Sakharov while A. Sakharov was still in exile was one of the main turning points of perestroika. This phone call would not have been possible without the influence of Gorbachov's scientific advisors, who advocated for peaceful cooperation with the West based on Sakharov's concept of convergence.

Fundamental scientific research is inherently dependent on large-scale projects requiring substantial investment. Most cutting-edge facilities built in recent years have relied on contributions from participating nations. A prime example is the European XFEL, operated by DESY, where Russia contributed approximately 27% of the construction costs (up to 300 million euros by 2017 (XFEL). The war in Ukraine has called into question the interconnectedness of financial interests. However, investments in fundamental research have little connection to military activities. The involvement of DESY in military research would jeopardize such investments, making future contributions from international partners highly unlikely. Thus, while short-term financial gains from military research might seem attractive, they could ultimately become a limiting factor for the lab's long-term sustainability and international credibility.

Fundamental physics research, and DESY in particular, have been leading forces in open-access research. Open access is a foundational principle of fundamental science and remains the prevailing model for publicly funded research in Europe. Open-source and open-access frameworks have significant industrial implications, as exemplified by the recent Chinese DeepSeek deep learning model, which could lead to considerable reductions in electricity costs and a smaller environmental footprint. Military research, however, fundamentally contradicts the principles of open access. European science, and DESY in particular, should maintain leadership in open science, serving as a global example of transparency and collaboration.

The introduction of military research into existing civilian-only facilities raises multiple security concerns. Open access to research infrastructure would necessarily be restricted, reducing opportunities for international collaboration. Additionally, laboratories involved in military research become attractive targets for cyber threats from adversarial entities and, in extreme cases, could be considered legitimate military targets during conflicts. The potential for such attacks is particularly alarming given DESY's location in the heart of Hamburg. Any form of military-related targeting of DESY would have catastrophic implications for the city's civilian population. Moreover, DESY employees themselves would face greater security risks. While recent security measures, such as the introduction of two-factor authentication for DESY computing centers, make direct cyber intrusions more difficult, they also increase the likelihood of personal attacks aimed at obtaining authentication devices, placing additional risks on employees. The risks would multiply significantly if military research were introduced.

Furthermore, many physicists have chosen fundamental research precisely because of its strictly non-military nature. These researchers joined civilian institutions like DESY under the assumption that their work would remain uninvolved in military applications. If military research were introduced, they would face an ethical dilemma: continue working in an environment contrary to their beliefs or leave, despite having dedicated much of their careers to their research at DESY.

If military research must be expanded, it should be conducted in dedicated facilities located in less populated areas, designed with comprehensive security measures and clear contractual agreements that align with the nature of military-focused work. This approach would be far more appropriate than compromising the integrity and mission of existing civilian research institutions.

5.2 Research at CERN: "no concern with work for military requirements". Author: J. Ellis, Kings College London

CERN was founded shortly the end of the Second World War with the explicit intention of bringing together the scientific communities of European countries that had previously been fighting each other, to collaborate, in the words of its Convention, on “research of a pure scientific and fundamental character, and in research essentially related thereto". It is widely known that the CERN Convention goes on to state that the Organization "shall have no concern with work for military requirements". The French version of the CERN Convention states that the Organization “s’abstient de toute activité à fins militaires", which corresponds more clearly, perhaps, to “refrains from any activity for military purposes". To my knowledge, this rule has always been strictly applied, to the extent that CERN has refused to collaborate with institutions that are involved in military research. “Science for Peace" is in CERN’s genes.

I once accompanied a CERN Director-General who shall remain nameless to on a visit to a research group that shall remain nameless in a country that shall also remain nameless, with the aim of expanding scientific collaboration. The discussion started swimmingly. Unfortunately, I had to rush out for a moment to attend to an urgent call of Nature. When I returned a few minutes later, the atmosphere had turned distinctly chilly, and the meeting broke up prematurely. I discovered later that our prospective partners had revealed they worked on military laser systems, and that put a stop to any discussion of collaboration.

On another occasion, another nameless institute in a different nameless country approached CERN about collaboration. However, due diligence revealed that the institute worked on ballistic missiles, so that was the end of that discussion.

In some cases, however, CERN does collaborate with research establishments that do some military research. However, these are institutes - both in CERN Member States and elsewhere - that have fences across their campuses separating groups working on military research from their civilian colleagues. Only the latter may collaborate with CERN.

DESY is one of CERN’s most valued research partners, and it is reasonable to ask what would happen to this partnership if DESY were to accommodate dual-use research. If the

research with military applications were separated from the civilian researchers by a fence, the collaboration could perhaps continue unimpeded. But does DESY really want its campus to be divided by a fence? I fear that the character of the institute would change irreversibly for the worse.

After the statement against military research, the CERN Convention goes on to state that "the results of its experimental and theoretical work shall be published or otherwise made generally available." CERN takes this provision very seriously, insisting (like many funding agencies) that all its research be published under "Open Access" rules. To my mind, this provision places another significant obstacle in the way of collaboration with institutes that perform dual-use or military research. CERN has recently extended the principle of openness to include Open Infrastructure, Open Source Software and Open Hardware.

The insistence on avoiding any association with military research has played a key role in enabling CERN to become a global research centre. As such, it has hosted research teams from many countries that are political or military adversaries, such as India and Pakistan, Israel and Palestine, Iran and the US, even until recently Russia and Ukraine. As the founders of CERN recognised, research into the fundamental laws of physics is a topic of universal interest and value, that advances best if it is open to all scientists whatever their origin and its results are published in the open scientific literature. Until now, DESY has adopted a similar policy of openness, and has also developed into a global research centre. It is to be hoped that DESY will be able to resist any political pressures to change this policy, and avoid harming its enviable reputation.

5.3 FONAS statement against undermining the separation of civilian and military research. Authors: Thea Riebe, Technical University of Darmstadt, Germany, Jürgen Altmann, TU Dortmund University, Germany

FONAS (Forschungsverbund Naturwissenschaft, Abrüstung und internationale Sicherheit, Research Association for Science, Disarmament and International Security, fonas.org) is the professional organisation of researchers in German-language countries working on questions of disarmament and international security with natural-science, engineering, computer-science or mathematics methods. Reacting to calls for strengthening dual-use and military research at universities, FONAS has issued a statement in February 2025. In this, FONAS strongly warns against the increasing overlap between civilian and military research. Current political initiatives at both the national and European levels threaten to blur this fundamental boundary, thereby fundamentally altering the nature of science.

FONAS sees this as a significant danger to the independence and transparency of science. "The targeted promotion of dual-use technologies creates incentives for the militarization of civilian research institutions and universities," warns the research network. "This not only leads to the deliberate creation of gray areas but also makes it more difficult for researchers to actively choose an exclusively civilian use of their work." Particularly problematic is the looming weakening or even abolition of civilian clauses. Without these regulations, the responsibility for ethical research decisions would be unilaterally shifted onto individual sci-

entists?while at the same time, third-party funding and career incentives are increasingly directed toward militarily relevant research fields.

FONAS emphasizes that science thrives on transparency, cooperation, and international exchange. A stronger integration of military interests not only endangers these fundamental principles but also the international attractiveness of Germany as a research location. Stricter security regulations and confidentiality obligations in dual-use projects could exclude foreign researchers and hinder free collaboration in key scientific fields.

FONAS therefore calls for:

- The consistent maintenance and strengthening of the separation between civilian and military research,
- A clear stance from universities and research institutions against the militarization of science,
- Strengthening civilian clauses to ensure transparency and ethical responsibility in research.

The full statement from FONAS is available in Ref. [38].

6 Dual-Use Issues

6.1 No escape from Dual-Use. Author: J. Scheffran, Hamburg University

6.2 Responsibility of Science Institutions and Scientists

7 Conclusions

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