

Translating STS in China: Disciplinary Struggles and Future Prospects

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Abstract

This article analyzes a debate in Mainland China over how to designate and integrate the international field of STS (science and technology studies) in Chinese academia. Emerged at the turn of the millennium, this debate confirmed the increasing hold of STS in China, but it also revealed significant tensions regarding the general orientation and the place of the field in Chinese academia. These tensions reflect not only larger contradictions found in other globalized local instantiations of STS but also Chinese specificities. To understand both dimensions, this article approaches the rise of STS in China as a creative process of translation mediated by context-specific globalized struggles and negotiations. This approach builds on Asia-focused postcolonial discussions of translational practices to capture some of the distinctive features of the field of STS in China, including the strong influence of the Marxist tradition, the continuing hold of modernist-positivist approaches, and the strong control exercised by the party-state on academia. We use the Chinese example to highlight the translational diversity of the global STS project and to raise general questions about the future of STS across borders in the twenty-first century.

Keywords

STS; China; translation; institutional development; challenges

Introduction

The field of STS—usually rendered as science, technology, and society studies, or simply science and technology studies—is an international interdisciplinary field that emerged in Europe and North America in the 1960–70s as scholars proposed a practice-oriented approach that viewed science and technology not as mere end products of truth and rationality but as historically and socially embedded enterprises. This approach has since developed into a globally circulating field of inquiry featuring multiple sets of

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approaches, practices, translations, and displacements, and shaped by transnational flows of communication (Sismondo 2010; Fischer 2016; Mazanderani et al. 2018).¹ China's engagement with this globally diverse field started in the 1980–90s, the first two decades of the Reform period, but it was only in the early 2000s that there emerged a scholarly debate over how to properly translate the term “STS” into Chinese.² Scholars from various disciplines in the humanities and social sciences, including the Marxist discipline of “dialectics of nature” (*ziran bianzhengfa*, now called “philosophy of science and technology,” *kexue jishu zhexue*) and a number of related subfields such as “history of science and technology” (*kexue jishu shi*), played an important role in this debate.³

The STS translation debate in China was not just about translating the name of the field into Chinese; there were also important discussions about the place of the field of STS in Chinese academia. These exchanges were an attempt to reach an agreement on what should be the epistemological and institutional position of the field of STS in the Chinese academic system, but there were significant disagreements on these issues, reflecting deeper disciplinary tensions and hierarchies. The STS translation debate was led by scholars trained in the discipline of dialectics of nature (also known as philosophy of science and technology). These scholars located the field of STS in Chinese Marxist tradition, and called for the establishment of a new independent discipline called *kexue jishu xue*, literally “science and technology studies.” This proposal was widely debated, but there was no consensus around the name of the discipline; the idea of creating a new independent discipline received significant opposition, especially from scholars outside the discipline of philosophy of science and technology.⁴ This lack of consensus meant that STS within Chinese academia was in a position of ambiguity. For some scholars in China, this ambiguity has been an important obstacle to the endemic growth of the field of STS in the last two decades, but this view is far from being universally accepted in China.

¹The globalization of the field of STS was intensified after the turn of the century. This transformation has inspired the emergence of an increasing number of STS networks and organizations in different parts of the world. Some of these networks and organizations have a strong national orientation; others are more transnational and support new visions of STS across borders. The current transnational editorial collective of the journal *Engaging Science, Technology, and Society* (<https://estsjournal.org/>) is a good example of a transnational network committed to promoting new visions of STS across borders. Examples of Asia-focused transnational networks include the *Sci-Tech Asia International Research Network* formed in 2017 (<https://www.scitechasia.org/>) and the *TransAsiaSTS Network* formed in 2018.

²We use the term “China” to refer primarily to the People’s Republic of China. Our account does not consider the situation in Taiwan, Hong Kong, Macau, or Singapore, even though we are well aware that the development of the field of STS in China has been shaped by larger developments in the sinophone world, in other East Asian countries, and more generally in the Asia-Pacific region (see, for example, Fujigaki 2009).

³All Chinese terms are cited in Standard Chinese (Putonghua), the official language of the People’s Republic of China, and are transcribed with the standard Pinyin System of romanization.

⁴Although we feel that disciplinary affiliations are important in this controversy, it is not always possible to make clear-cut disciplinary differentiations, especially because dialectics of nature has become a required course for graduate students since 1981. This means that graduate students in sub-fields like history of science and sociology of science are also trained in issues of dialectics of nature. Conversely, many dialectics of nature scholars are aware of the need to engage more seriously with history of science and sociology of science.

These tensions reflect larger contradictions found in other globalized instantiations of STS, but the Chinese case has its own specificities. Understanding these specificities requires approaching the rise of STS in China not as a mere phenomenon of knowledge transfer but as a creative process of translation that is mediated by struggles and negotiations taking place in a specific context. Methodologically, our focus on Chinese STS struggles and negotiations is based on a combined analysis of primary sources, such as public online exchanges, and of secondary sources, such as scholarly publications and official documents. Theoretically, we build on Asia-focused discussions of translational and translanguing practices in postcolonial, and comparative literature studies ([Liu 1995, 1999](#); [Rogaski 2005](#))⁵ to highlight some distinctive features of the debates shaping the emergence of what could be considered a field of STS in China, including the strong influence of the Marxist tradition, and the continuing hold of modernist-positivist approaches. Towards the end of the article, we make the case that supporting the growth of STS in China will require academics to adopt a flexible approach towards how a field can develop, which is an STS challenge in and of itself. We use the Chinese example to highlight a diversity within globalized STS formations while raising general questions about the future of STS across borders in the twenty-first century.

Key Players in the STS Translation Debate

The discipline of dialectics of nature (i.e., philosophy of science and technology) was a major actor in the STS translation controversy. The history of this discipline goes back to the period leading to the founding of the People's Republic of China in 1949. The roots of the discipline lie in an unfinished work by German philosopher Friedrich Engels, "Dialektik der Natur" [Dialectics of Nature], which applies Marxist ideas—particularly those of dialectical materialism—to human-nature relations and the historical development of science ([\[1883\] 1940](#)). This was one effort to develop a comprehensive Marxist worldview that embraces both human society and the natural world with a strong emphasis on the mediation of science and technology ([Kangal 2020](#)). While passages are very dated, as well as unfinished—Helena Sheehan, Marxist philosopher and historian of science, has recently noted the work's importance—that this text is a major Marxist contribution to the international development of the field of STS ([\[1985\] 2018, 2021](#)). Sheehan argues that this contribution is not more widely acknowledged by STS scholars working outside China and other formerly socialist countries, because we are living at a time when the history of Marxism in relation to the history of STS is becoming "an increasingly forgotten story" ([ibid.](#)).

The reading and research of "Dialektik der Natur" in China started in the 1920s, when left-leaning intellectuals were searching for philosophical approaches to better understand science to modernize China ([Lu 2003](#)). In 1932, "Dialektik der Natur" was translated into Chinese by Weizhi Du under the title *Ziran Bianzhengfa* ([Benton 2014](#)). During the 1930–40s, there emerged a growing number of writings in the field of dialectics of nature, including influential articles by emerging political theorist Mao Zedong such as "On

⁵Other important sources of inspiration include debates on pluriversality and "world anthropologies" ([Ribeiro and Escobar 2006](#); [Escobar 2018](#)) and everyday STS approaches focusing on the perspective of subaltern groups in society ([Bray 2007](#); [Wajcman 2010](#); [Santos 2021](#)).

Practice” ([1937] 2021a in Au 2017) and “On Contradiction” ([1937] 2021b in Au 2017).⁶ Mao’s writings built on the key Engelian insight that humanity’s relation with nature is shaped by a dialectical law of development and that the use of the natural sciences would allow humanity to move upward in this dialectical process of development, but Mao insisted that the modern project of attaining freedom from nature should remain subordinate to the guiding values of Marxism and the socialist revolution (Gong 1991). This Maoist theorization became a central aspect of Chinese Communist Party ideology in the 1930s and 1940s. This helps understand why the Party saw the role of science in Western societies as subordinate to capitalist ideology and capitalist interests. This focus on the political dimensions of science was shared by Western-Marxist scholars such as the British scientist John Desmond Bernal, whose classic work “*The Social Function of Science*” published in 1939 became influential in the Chinese field of dialectics of nature (Ma 1993).

After the establishment of the People’s Republic of China in 1949, the field of dialectics of nature was officially recognized as an independent discipline and included in the national plan for scientific development put forward by the State Council in 1956 (Huang 1991). The discipline’s institutional position was strengthened as the dominant national philosophical approach to science and technology that provided an integrated framework that unifies scientific and technological developments informed by socialist ideals. The discipline was not just a philosophical tradition; it was also a political tool to give scientific legitimacy to the Communist project of modernization and a managerial tool to control scientists and ensure that their research activities were along the lines of Party ideology (Harrell 2020, 2023).

As a source of scientific legitimacy for Party policies, the discipline of dialectics of nature was a major pillar of official Chinese Marxist thought. These conceptualizations informed the spirit of many scientific and technological achievements during the 1950s and 1960s (Schneider 2003), including major breakthroughs in physics (Sakata and Duan 1963; Friedman 1983; Liu 2018), major developments in agriculture like the discovery of hybrid strains of rice and “scientific farming” (Santos 2011; Schmalzer 2014, 2017), and new ways of combining Western medicine with traditional Chinese medicine (Gong 2005, 33).⁷

As a tool of controlling scientists, dialectics of nature offered the Party a set of procedures to identify ‘good’ and ‘bad’ science in light of the greater goals of China’s socialist modernization and revolution (Guo 2014). This was a mechanism of social control that started to become increasingly visible in the 1950s as China furthered its commitment to the revolution and its alliance to the USSR.

With the beginning of China’s Reform and Opening in the late 1970s, the field of dialectics of nature continued to occupy a prominent position in the Chinese academic landscape. Meanwhile, its connection to the Party started to become less rigid and dogmatic as a new wave of Marxist reformist ideologues began to emphasize the importance of “emancipating the mind, seeking truth from facts” (*jiefang sixiang, shishi*

⁶ See Au (2017) for context.

⁷ These achievements are a good reminder of the important contributions made by the field of dialectics of nature to Chinese understandings of science and technology and its role in society. This was the case in the Maoist period and it is still true today, sometimes through the reinvention of earlier practices.

qiushi) ([Li and Lu 2018, 187](#)). Their new attitude opened the way for a greater diversity of approaches and a greater concern with practical issues related to science and technology, providing policy suggestions to manage the development of science and technology and translate Western works about science and technology ([Sun 2011](#)). This shift in orientation went hand in hand with a reinforcement of the field's prominent position in the Chinese academic landscape of the post-Mao period.

As an important turning point, in 1981, dialectics of nature field established its own professional association and became a compulsory course for all postgraduate students in Chinese universities studying subjects related to science, engineering, agriculture, or medicine. These developments resulted in a significant expansion of the field's academic audience and inspired a quest for new sources of intellectual inspiration beyond the Marxist tradition.

One of these sources was the growing international field of STS, whose initial development in Europe and North America from the 1950s onwards was influenced by various intellectual (including Marxist) traditions that emphasized the sociohistorical character of science and technology. STS started to circulate globally in the 1980s under the influence of newly founded organizations such as the Society for Social Studies of Science (founded in North America in 1975) and the European Association for the Study of Science and Technology (founded in the Netherlands in 1981). In 1985, the Dialectics of Nature Research Unit of Tsinghua University in Beijing established the first-of-its-kind Institute of Science, Technology, and Society (*Kexue Jishu yu Shehui Yanjiusuo*) in China. Until its closure in 2018, this institute has created the conditions for a higher degree of engagement with international STS theorizations, and this engagement—together with the emergence of increasing interdisciplinary exchanges between dialectics of nature and other related fields such as history of science and sociology of science—has opened the way for the growth of a more globally attuned Chinese STS community ([Li and Lu 2018, 187](#)).

Back in the 1980s, dialectics of nature scholars in China had two important reasons to engage with an international field of STS. First, the discipline of dialectics of nature was too centered on domestic developments in the Chinese Marxist tradition, and there was pressure to catch up with international trends and learn about other theoretical approaches ([Zhang 2002](#); [Zhang 2003](#); [Li and Lu 2018](#)); and second, the same scholars saw STS as an opportunity to enhance the theoretical foundations of the discipline of dialectics of nature, improving its visibility, and legitimacy in China. This interest in STS coincided with a broader call for theoretical renewal within the discipline of dialectics of nature. This renewal involved the gradual incorporation of the dialectics of nature into the wider discipline of philosophy of science and technology (*kexue jishu zhexue*), which started in the 1980s and was completed during the period of higher-education reforms of the 1990s and 2000s ([Zeng 2002](#); [Zhang 2003](#)). This was an era of unprecedented theoretical openness in the discipline of philosophy of science and technology.

In addition to dialectics of nature (philosophy of science and technology), the other major Chinese academic discipline involved in the STS translation controversy is—history of science and technology (*kexue*

jishu shi).⁸ While the discipline of history of science and technology is less prominent and politically influential in China than dialectics of nature, it experienced significant institutional growth from the 1980s onwards with the expansion of the higher education sector and increasing interest in China's scientific and technological legacies. In 1986, Peking University established the History of Science Research Center (*Kexueshi Yanjiu Zhongxin*) and this important turning point was followed by further institutional growth ([Yuan and Liu 2000, 51](#)). In the early 1990s, the history of science and technology was still classified as a "third-tier discipline," i.e. a small academic discipline integrated in the larger and more highly ranked "first-tier discipline" of history, but by the turn of the millennium, the history of science and technology was officially promoted to the status of "first-tier discipline."

This promotion represented a major boost in terms of resources and recognition. Specifically, it meant that the institutions of history of science and technology became eligible to train postgraduate research students, offering master's and doctoral degrees while applying for a wide range of research grants from the Ministry of Education in China. Despite this boost, the discipline of history of science and technology continued to struggle with insufficient institutional support that made it difficult to conduct research, teach courses, or hire qualified instructors. Furthermore, unlike dialectics of nature (philosophy of science and technology), the discipline of history of science and technology did not benefit from official state support and was not a compulsory course for graduate students ([Liu and Zhu 1995](#)).

The STS Translation Debate

The first national symposium at which participants discussed Chinese engagement with the international field of STS was held in 1993 in the city of Wuhan and was organized by the Chinese Society of the Dialectics of Nature ([Ma 1993](#)). After the symposium, the field of STS became increasingly popular in Chinese academic circles, but there was no agreement on terminology. Some scholars referred to the field with the common international acronym STS; others translated the STS label into Chinese as *kexue jishu yu shehui* meaning "science, technology, and society" (cf. [Liang 1990](#); [Yin 1996](#); [Sun 1996](#); [Dai 1997](#); [Sun 1999](#)).

STS Translation as Translingual Practice

At the turn of the millennium, there emerged a public debate over what should be the standard Chinese translation of the STS acronym. It is not very surprising that the debate focused on the STS acronym because the acronym was often used in international academic discussions as the standard way to designate the field. The acronym started to become popular in Europe and North America in the 1970s and 1980s, and its usage was favored because there were significant disagreements regarding the longer rendering of the name of the

⁸ Here we use the term "discipline" to refer primarily to academic disciplines that are officially recognized and ranked by the Ministry of Education in China. By contrast, we use the term "field" to refer to circles of intellectual exchanges that can overlap (or not) with official disciplinary divisions and classifications. History of science and technology is both a field of intellectual exchanges and the name of an officially recognized discipline, but this is not always the case. As shown in this article, there is already a vibrant field of STS intellectual exchanges in China, but there is no officially recognized academic discipline directly related to this field of intellectual exchanges.

field. Today, the most common English renderings of the STS acronym are “science, technology, and society” (the name of the STS program at MIT and Virginia Tech among others) and “science and technology studies” (the less conventional name of the S&TS department at Cornell University), but there is still no consensus around any of these renderings, and similar linguistic translational ambiguities can be found in other European languages such as French, German and Portuguese. These ambiguities can also be found if we compare the views of individual STS scholars within and across borders.

“STS Talks,” a collection of interviews and reflections published in Volume 4 of the journal, *Engaging Science, Technology, and Society (ESTS)*, includes a number of important interviews with well-known European and North American STS scholars ([Mazanderani et al. 2018](#)), from which it is quite clear that there are significant disagreements over the meaning of the STS acronym. Donald MacKenzie, professor of sociology at the University of Edinburgh, notes for example, that although the designation “science and technology studies” has become increasingly popular since the 1980s, the alternative “science, technology, and society” is much older and can be dated back to the 1960s ([Schwyter and Mackenzie 2018](#)). Sheila Jasanoff, professor of science and technology studies at Harvard University, by contrast, is convinced that the two terms have an equally long history but point to different concerns ([Pickersgill and Jasanoff 2018, 320–24](#)). “Science and technology studies” (S&TS) approach science and technology *per se* as the key target of analysis, while “science, technology, and society” (STS) focuses more on the interaction between science, technology, and social factors ([ibid., 321](#)). These disagreements are not just about matters of terminology but reflect deeper methodological and theoretical differentiations that have shaped the development of European and North American STS traditions, turning them into a remarkably heterogenous field of scholarship ([Sismondo 2010](#); [Fischer 2016](#); [Mazanderani et al. 2018](#)). This heterogeneity did not prevent the field of STS from becoming a globally circulating artifact because there was strong international convergence around the STS acronym, and this convergence opened the way for further translational developments and differentiations in other parts of the world.

In this article, we approach the global circulation of the field of STS through the lens of processes of translation (of words, theories, artifacts, disciplines, among others), and explore some of the translational struggles and negotiations that allowed the emergence of the Chinese field of STS as one of many globalized local instantiations of STS. Our focus on translational struggles and negotiations draws significant theoretical inspiration from the work of Asia-focused scholars in postcolonial studies such as Lydia H. Liu ([1995, 1999](#)) and Ruth Rogaski ([2005](#)). In the translation practices analyzed by Rogaski, in light of Liu’s notion of translingual practice, there are shifting tensions and meanings in the “source” language/culture as well as shifting tensions and meanings in the “target” language/culture, and this makes STS as a term, far more complicated and contested than might be expected.

Conventional models of “knowledge transfer” evoke clear-cut binaries opposing North and South, West and East, developed and developing, center and periphery, original and copy. These hierarchical differentiations assume unilateral flows of knowledge that can either fail or succeed depending on the quality of the process of knowledge transfer. This model is too simplistic to capture the complexities of contemporary processes of academic globalization. Making sense of the globalization of the field of STS is not about documenting the transfer of a Western creation to other parts of the world; it is about elucidating the shifting translational tensions and meanings of the field of STS as it circulates across national and

geopolitical boundaries. Our focus on the shifting translational struggles and negotiations shaping the rise of the field of STS in China recognizes the existence of geopolitical hierarchies shaping the flows of academic knowledge globally, but it questions the tendency to approach academic globalization primarily through the lens of Western-centric narratives of global dissemination. Our analysis makes a Chinese contribution to this larger effort to “provincialize STS” and thus to acknowledge the existence of multiple STS centers, postcolonial symmetries, and varied translational practices ([Law and Lin 2017](#); [Anderson 2012](#); [Rottenburg 2009](#)).

Translating STS into Chinese, and More

In China, the STS translation debate began with linguistic translation. The Chinese writing system is non-alphabetic, making an alphabetic acronym like STS stand out as a foreign loanword with little meaning. As increasing Chinese scholars became interested in STS, there emerged a debate over what should be the standard Chinese translation of the STS label. This debate was particularly intense from 2000 to 2005, and the various participants proposed two sets of translations based on very different criteria. While one category of translation proposals demonstrated a strong concern with “linguistic succinctness and clarity,” another category emphasized “distinctiveness and conceptual precision.”

The first set of translation proposals was supported by prominent dialectics of nature (philosophy of science of technology) scholars such as Guoping Zeng who translated the STS label as *kexue jishu* “*xue*” as science and technology studies ([Zeng 2002, 2003](#)) and *kexue jishu* “*yanjiu*” as science and technology research ([ibid.](#)). Other similar translations proposed by other scholars include *kexue jishu* “*lun*” as science and technology theory ([Sheng et al. 2004](#)). These translations are all very clear and succinct because they use terms like “*xue*” meaning studies, “*yanjiu*” as research or studies, and “*lun*” as theory—that are commonly used in Chinese to indicate the name of a discipline or field of study ([Zeng 2003](#)), so the literal English translation of each of these proposals is very close to the English rendering of science and technology studies ([Liu 2002](#); [Zhang 2003](#); [Liu 2008](#)).

A second category of translation proposals was offered by various historians, sociologists, and philosophers. These scholars translated STS as *kexue jishu* “*yuanyanjiu*” or as *kexue jishu* “*yuankan*” with both translating as—a meta-studies of science and technology ([Wu 2003](#); [Liu 2000, 2002](#)).⁹ These scholars used “*yuanyanjiu*” and “*yuankan*” to mean meta-study, because their priority was to capture with a high degree of conceptual precision one of the founding elements of the field of STS internationally, namely its concern with ontological questions of science and technology. They also thought that the usage of terms like meta-study allowed for theoretical openness and added an element of linguistic distinctiveness and refinement to the name of the field.

The debate over STS in China was not just about how to translate the term STS into Chinese. Equally important were questions about the position of the field of STS in the Chinese academic system, and the

⁹ Some scholars have shifted their positions in the debate, exemplified by Liu Huajie, a philosopher, natural historian, and scholar of scientific communication.

discussion of these issues was guided by two important forces shaping Chinese political and academic life at the turn of the millennium: on the one hand, the desire to retain “Chinese characteristics” and reaffirm the centrality of the Chinese Marxist tradition; on the other hand, the desire for internationalization. These two forces generated antagonistic positions at times, but they could also be complementary.

The question of the Marxist tradition permeates the writings of scholars on both sides of the debate, but is particularly pressing for scholars of Marxism like dialectics of nature. As mentioned earlier, translating the field of STS into China offered dialectics of nature scholars an opportunity to re-legitimize the Marxist tradition through engagement with an international field of research with solid credentials. Engaging with the field of STS was also a way for Marxist scholars to increase their knowledge of theoretical approaches outside the Marxist tradition at a time when China was very much committed to encouraging exchanges with the “outside world,” also in academia.

This agenda is particularly obvious in the proposals of dialectics of nature (philosophy of science and technology) scholars who favored clear and succinct translations because many of them maintained that the Chinese Marxist tradition should be one of the foundations of the new—*kexue jishu xue* ([Zeng 2002, 2003](#); [Zhang 2002](#); [Zhang 2003](#); [Wang and Huang 2005](#); [Wang 2005](#)). This link to the Chinese Marxist tradition was questioned by many scholars within and outside the philosophy of science and technology, including historians and sociologists of science and technology. These scholars argued that the idea of defining STS in Marxist terms is flawed because it is based on a poor understanding of the diverse analytical foundations of the international Western STS project ([Xu 2004](#)). Yuanlin Guo ([2007](#)) went as far as arguing that the idea of creating a new discipline called *kexue jishu xue* and linking it to the Marxist tradition was an attempt to use the international Western STS label to lend further legitimacy and institutional power to traditional Marxist disciplines (i.e. dialectics of nature) within China.

This last point is connected to a second force shaping the STS translation debate—the desire for internationalization. This desire can be found in the writings of scholars on both sides of the debate. Scholars supporting a clear and succinct translation wanted to show familiarity with larger international trends, so they invoked the interdisciplinarity of North American STS departments like those at Cornell and MIT to justify the general and all-embracing nature of their translation proposals ([Zeng 2002, 2003](#)). Scholars supporting a distinctive and conceptually precise translation also highlighted the importance of keeping up with international trends but they argued that the Western field of STS was a complex endeavor that resulted from a distinct combination of many disciplines, and thus it deserved a distinctive translation ([Wu 2003](#); [Guo et al. 2004](#)). Despite significant differences in their positions, scholars on both sides of the debate emphasized the importance of following international trends, but they also insisted on maintaining Chinese characteristics, even though there was no clear-cut agreement on the degree to which commitment to the Marxist tradition was part of these characteristics.

The Cornell Model: Creating a New Academic Discipline?

As the translation debate unfolded, it became increasingly clear that just as there was no consensus on how to designate the field of STS in Chinese, there was also no consensus on the necessity of reaching an agreement on this issue. Scholars supporting the view that standardizing the name of the field was a necessity were not just thinking about finding an internationally appropriate name that captured the general

orientation of the field; they were also concerned with the importance of what the Chinese Confucian tradition calls “rectifying the name” (*zhengming*). That is, finding a name and definition that are widely accepted and officially recognized as legitimate. The issue of “rectifying the name” is a particularly important element of the *modus operandi* of the Chinese academic system; it would seem that the only way for the field of STS to survive and expand would be for its naming to be officially recognized by the Ministry of Education. This view gained some popularity, but not everyone agreed with it because there were profound disagreements over what should be done to secure the growth of STS in China. These disagreements became more visible as the translation debate evolved into a larger discussion as to whether STS should become an officially recognized discipline.

What became known as the “Cornell Debate” in China was started by proponents of clear and succinct translations of STS, especially philosophy of science and technology scholars. Professor of philosophy of science and technology at Tsinghua University, Guoping Zeng (2002), argued that the new field of *kexue jishu xue* (literally “science and technology Studies”) should become an independent discipline, and the model for this discipline should be the department of science & technology studies at Cornell University. Huajie Liu (2002), though not a typical philosopher, argued that all social studies of science and technology should be incorporated into a larger discipline called *kexue jishu xue* (literally “science and technology studies”). Professor of philosophy of science and technology at Beijing University of Chemical Technology Mingguo Zhang (2003, 8–9, and 11) supported this idea, arguing that creating a new academic discipline called *kexue jishu xue* would encourage the expansion of STS in China. For Zhang, “rectifying the name” of the field was a necessary step for official recognition as well as institutional expansion.

These proposals to build a new discipline called *kexue jishu xue* gained popularity within the field of philosophy of science and technology, leading to concrete suggestions on how to define the boundaries of the new discipline. These suggestions both incorporated and transcended the narrow confines of the Chinese Marxist tradition (Liu 2002; Zhang 2003; Huang 2005; Wang 2005). There were plans to create a large discipline, or at least a more institutionalized research cluster that incorporated various subfields such as philosophy of science and technology, history of science and technology, and sociology of science and technology, among others.

One of the main goals of this project was to improve the status of STS within Chinese academia, or more specifically to create a new discipline that is accredited by relevant academic institutions and political authorities. Given the strong administrative control in Chinese academia, the achievement of this goal would help consolidate existing STS academic networks and create new STS institutions and training programs. It would also help increase the funding opportunities for STS scholars, allowing them to compete for grants in their own field and to conduct their research without having to worry about the institutional legitimacy of their endeavors. As noted by professor of philosophy of science and technology at Tsinghua University Bing Liu (2011), tight administrative control of academic institutions can have advantages and disadvantages, depending on the extent to which a discipline has been successfully institutionalized.

This idea that the best way to secure the future of STS in China was to turn it into an officially recognized academic discipline was not without its critics. The proposal received strong opposition from scholars working both within and outside the discipline of philosophy of science and technology, especially those who in the context of the STS translation debate insisted on the importance of adopting a distinct and

precise translation that captures the unbounded nature of the field of STS. For example, Guosheng Wu (2003), professor of history of science at Peking University, and Dun Liu (2003), professor of history of science then at the Chinese Academy of Sciences, pointed out that STS is not a closed discipline but rather an inter- and multi-disciplinary platform of research that should remain open and fluid. There were also concerns about the institutional side-effects of creating a new STS discipline. Writing in an online forum, Zhangyin Li (IHNS-CAS 2003), professor of philosophy of science and technology at Shandong University, noted that the idea of creating a new discipline called *kexue jishu xue* could have a negative effect on the development of smaller disciplines such as sociology of science and technology. Professor of philosophy of science and technology at Shanxi University, Guichun Guo et al. (2004) pushed this argument further, arguing that the idea of creating a separate discipline was an instrumental strategy adopted by philosophy of science and technology scholars such as Guoping Zeng to use the STS label to consolidate the high academic status of their discipline.

These disagreements regarding the institutionalization of STS reflect larger tensions found in most globalized local instantiations of STS. For instance, Dutch scholar Arie Rip and American scholar Sheila Jasanoff insist on the importance of creating a more institutionalized discipline with shared methodological and theoretical concerns (Pickersgill and Jasanoff 2018; Calvert and Rip 2018). Or, British scholar Andrew Stirling and Austrian scholar Karin Knorr-Cetina believe that the institutionalization of STS as a closed discipline can damage the power of criticism and STS's characteristic of reflexivity (García-Sancho and Knorr-Cetina 2018; Kattirtzi and Stirling 2018). They feel that the field of STS should remain free from the constraints of disciplinary institutions.

These tensions are in many ways similar to the disagreements we encountered in the Chinese context, but in the case of China, the camp supporting the pathway of institutionalization is strongly connected to philosophy of science and technology, which is rooted in the Marxist tradition of dialectics of nature and occupies a prominent position in the Chinese academic system because of its connections to the Communist Party. Despite being well-positioned in the Chinese academic and political system, the scholars supporting the pathway of institutionalization were unable to impose their position on the larger STS community because there were many critical voices. These divisions would play an important role in subsequent developments.

Debate Aftermath: Institutional Tensions and Fragmentation

The translation and institutionalization debate reached its climax in 2005, but no broad agreement emerged regarding the name of the field and the necessity of turning the field into an officially recognized academic discipline. Today, not everyone uses the term *kexue jishu xue* (literally “science and technology studies”) proposed by philosophy of science and technology scholars. Other popular terms include *kexue jishu yu shehui yanjiu* (literally “science, technology, and society studies”), *keji yu shehui yanjiu* (literally “science, technology and society studies”), and even the international acronym STS used as a foreign loanword (Chen and Chen 2013; ISTS 2018).

This proliferation of STS labels reflects significant divisions within the emerging STS community. These divisions are further reflected in the proliferation of STS-related academic committees and conferences. In 2003, following calls by philosophy of science and technology scholars for the creation of a

new STS discipline called *kexue jishu xue* (science and technology studies), the Chinese Society for the Dialectics of Nature organized a national conference to establish a professional *kexue jishu xue* subcommittee (Li and Liu 2003; Li 2006). In 2004, the first annual national *kexue jishu xue* conference was held in Hangzhou. Since 2006, a national *kexue jishu xue* conference has been held roughly every year or every two years (Liu 2008). This conference brings together the field of *kexue jishu xue* (science and technology studies) proposed by philosophy of science and technology scholars with the well-established field of *kexue xue* (literally “science studies,” aka “science of science,” a Marxist discipline focusing on practical, social, strategic, and policy issues related to science and technology). According to the program of the Ninth Joint National Conference held on December 5–6, 2020 in Jinan, China, the conference welcomed over one hundred scholars from many universities across the country, and featured a diverse range of topics under the general theme of “science and technology development and governance towards the future,” including technoscience, social responsibilities of science and technology talents, scientific exchange and communication, big data and science and technology governance, and the history of science of science (Science of Science 2020).

A few years after establishing its subcommittee of *kexue jishu xue* (science and technology studies), the Chinese Society for the Dialectics of Nature established another subcommittee focusing also on STS-related issues: the “*keji yu shehui*” (literally “science, technology and society”) subcommittee. In 2007, this *keji yu shehui* subcommittee started organizing its own annual conferences, with growing numbers of participants every year. We examined the program of some of these annual conferences (e.g., Henan Normal University 2019), and were again impressed by the high number of participants and the diversity of research topics and disciplinary approaches, but it is not clear why *keji yu shehui* (science technology and society) conferences were organized in separate from *kexue jishu xue* (science and technology studies) conferences. One could say, of course, that this is only a matter of labels and that these two conferences connect to one another as part of a larger overarching field of STS, but we did not find evidence of efforts of integration. It is true that many scholars participate in the conferences promoted by both subcommittees, but the very decision to create two separate subcommittees and conferences to deal with STS-related issues points to a climate of fragmentation that is symptomatic of larger scholarly disagreements over how to define and integrate STS in the Chinese academic system.

With these disagreements notwithstanding, there is no doubt that the number of STS-related research activities and publications has been growing in the last fifteen years. Moreover, this growth has been accompanied by increasing engagement with larger trends in the international field of STS—quite often through the mediation of East Asian research networks. There is also evidence suggesting an increasing diversity of research topics and theoretical approaches. A brief survey of the last fifteen years of articles in the two most influential philosophy of science and technology journals—*Ziran Bianzhengfa Yanjiu* (*Studies of Dialectics of Nature*) and *Ziran Bianzhengfa Tongxun* (*Journal of Dialectics of Nature*)—reveals increasing engagement with STS themes and theoretical approaches beyond the Marxist tradition. Marxist philosophy and historical materialism remain important conceptual approaches, but there are more historical and sociological studies of science and technology inspired by larger trends in the international STS community.

Recent issues of the *Journal of Dialectics of Nature* make this broadening of focus quite explicit because they include several distinct sections in the table of contents:

- philosophy of science and technology
- history of science and technology
- science, technology and society (*kexue jishu yu shehui*)
- cultural studies of science and technology (*kexue jishu wenhua yanjiu*)
- the science of science (*kexue xue*)
- science and technology management (*keji guanli*).

This broadening of focus goes hand in hand with two other related shifts: (1) a significant increase in the number of publications drawing on international STS trends in science and technology management, research policy, and innovation studies ([Wang and Huang 2005](#)), and (2) a comparable increase in the popularity of international STS theoretical developments such as actor-network theory to analyze contemporary or recent historical problems in China (e.g. [Liu and Huang 2013](#)).

This increasing engagement with international STS research approaches and theories reflects the growing significance of transnational exchanges in the activities of Chinese scholars working in STS-related disciplines. But this increasing “cosmopolitization” of emerging STS research practices did not lead to a “rectification” of the name of the field. In 2022, more than fifteen years since it was first proposed, the project to turn STS into an autonomous academic discipline with its own training and research units had still not materialized, and there were no signs that this would happen any time soon in China ([Duan 2022](#)).

Over the past several years there is evidence of institutional retraction with the closing down of the iconic Institute of Science, Technology, and Society at Tsinghua University in 2018. The reasons behind this closure are complex and include higher-level administrative pressures to reorganize research and teaching units in ways that maximize the output and the efficiency of relevant human resources ([Ni 2022](#)). The closure of the Institute was part of a larger plan to create a new Department of History of Science, which would be part of a larger disciplinary strategy adopted by Tsinghua University to follow the scheme of the Ministry of Education to build “world-class universities” and “world-class disciplines” ([Wu 2018](#)). This decision seems to reflect the fact that, in the eyes of university administrators, a loosely defined interdisciplinary field like STS is less important than officially recognized “first-class” disciplines such as history of science, themselves undergoing important transformations.¹⁰

It is still too early to say what the closure of the Tsinghua STS Institute in 2018 will mean for the future of STS in China—after all, as pointed out by Stirling and Knorr-Cetina in the “STS Talks” interviews ([Kattirtzi and Stirling 2018](#); [García-Sancho and Knorr-Cetina 2018](#)), the lack of institutionalization is not

¹⁰ In recent years, the Chinese discipline of history of science has begun moving away from writing histories of particular scientific fields or technologies to writing more general histories of science and technology, sometimes with a global comparative focus (e.g. [Wu 2016](#)).

necessarily harmful, while institutionalization is not necessarily helpful. However, the prospects are not optimistic. In 2020, the *Tsinghua Sociological Review* published a special issue that looks back at the history of STS in China and identifies some of its future challenges (Wu and Gao 2020). The publication of this special issue shows that the field of STS is enjoying increasing popularity in the Chinese sociological community, but the contributors also note that the field lacks solid institutional foundations.

In the opening article of the special issue, Chenxiao Wu and Lu Gao (*ibid.*, 18) make the case that the field of STS has been weakening due to increasing divisions. They further argue that the development of STS in China continues to take place under the influence of dialectics of nature, and that field remains under-specialized and short of in-depth empirical research and analysis. Interestingly, while the two authors do not make any reference to the STS translation debate that took place almost two decades earlier, their article continues to be shaped by “translingual practices.” They offer Chinese translations of the two dominant renderings of STS in Europe and North America—“science, technology, and society” as “*kexue jishu yu shehui*,” and “science and technology studies” as “*kexue jishu xue*”—and they cite the views of Western STS scholars such as Sheila Jasanoff to explain the meanings of these terms. However, they completely overlook the fact that there are significant scholarly disagreements in Europe and North America around the meanings and the histories of these different terminologies, and equally overlook the fact that their proposed Chinese translations are far from being fixed and undisputed. This lack of agreement continues to be a source of significant ambiguities.

Moving Beyond the STS Translation Debate

These ambiguities have many Chinese-specific elements but they also seem to reflect the fact that whenever it emerges the field of STS tends to be marked by relatively porous, open-ended boundaries that are in “a permanent state of construction,” as Pablo Kreimer and Hebe Vessuri (2018) put it, writing about STS developments in Latin America. In this article, our goal is not to provide an ultimate solution to these ambiguities, but rather to insist on the importance of exploring these ambiguities from a grounded translational perspective that is respectful of the specificities of each context. Here is a summary of our account so far.

China’s engagement with the international field of STS started in the 1980s and ‘90s and culminated in a debate over how to translate the term STS into Chinese and how to secure the institutional growth of STS in the domestic academic system. In this debate, there is a relatively pragmatic group of institution-builders who want to incorporate the international field of STS within Chinese academia through a process of “nativization” and “domestication” that situates the field in the Chinese discipline of dialectics of nature. There is however, a more hybrid group of scholars, including philosophers, historians, and sociologists of science and technology, that oppose the idea of creating an independent, officially recognized STS discipline because they feel that this process of institutionalization will be dominated by Marxist approaches from the field of dialectics of nature (philosophy of science and technology).

Translating STS into China: Two Major Challenges

Two general lessons can be derived from our analysis of STS struggles and negotiations in China. The first lesson is that translation matters. There is more to translation than linguistic translation, but the work of

translating a new field of research into any given context usually starts with naming and linguistic translation. The second lesson is that institutional and infrastructural support matters when it comes to enhancing networks of funding, training, scholarly exchange, collaboration, and publication, but this support needs to take into consideration the specificities of the Chinese academic context. These two lessons have profound practical implications for future international efforts to promote the flourishing of STS infrastructures in China, and furthermore, the path ahead will require engaging with at least two important challenges.

The first challenge is the continuing hold in Chinese academia of an overly positivist approach to science and technology whose genesis goes back to the period of the Great Leap Forward (1958–1962) ([Shapiro 2001](#); [Greenhalgh 2020](#); [Harrell 2020, 2023](#); [Santos 2021](#)). This approach is of Marxist origins but only in the sense of a highly politicized version of Marxist academic traditions. Here we need to make a distinction between official Chinese Marxist ideology and Chinese Marxist scholarly traditions. Chinese Marxist scholarly traditions draw on a theoretical framework, i.e., dialectical materialism, that recognizes the achievements of science and technology, but like supporters of constructivist and other critical STS approaches, they also highlight the socio-historical character of science and technology and the social and ecological limitations of scientific and technological developments. This critical aspect of the Marxist scholarly traditions was not very useful to the Chinese Communist Party (CCP) in its revolutionary efforts to develop a necessarily reductionist guiding ideology of socialist civilizational progress based on the achievements of science and technology. This political project drew on those aspects of Chinese Marxist traditions that celebrate the power of science and technology as tools of socialist liberation, progress, and increasing mastery of nature. It is this more positivist Marxist narrative that has come to dominate Chinese political ideology, and it continues to be an important component of China's present-day globalized model of authoritarian technocratic governance ([Santos 2021](#); [Zhang 2022](#)).

What can and should be the role of STS in this context? Throughout its earlier stages of development in the European and North American contexts, both before and after World War II, the field had to cope with a similar challenge. It had to coexist with authoritarian models of scientific and technological governance, but simultaneously promote a whole new repertoire of concepts that sought to challenge authoritarianism and to foster a more democratic engagement with science, technology, and innovation through critical research, teaching, and public dialogue. The substantial growth of STS in the 1960s and 1970s was part of a larger shift towards a less authoritarian framework of scientific and technological governance that occurred in most developed countries associated with democratic political traditions. We cannot assume, however, that a similar transformation will occur in China, and this raises another challenge.

The second challenge lies in the authoritarian and bureaucratic nature of China's academic administrative system that controls research and teaching. Under such a system, the utility of academic disciplines is measured by the extent to which they are aligned or at least not in conflict with mainstream CCP ideology. However, the centralization of decision-making power and resources in Party-controlled higher administrative bodies such as the Ministry of Education precludes alternative ways for disciplines to grow without winning official recognition and institution. These two mechanisms of control were already in place when the STS translation debate started in 2000, but were significantly strengthened since President Xi Jinping rose to power in 2013 and expanded CCP's concerns with social stability and national security.

These two mechanisms of ideological and institutional control are often enforced by means of reform policies aimed at improving the efficiency of higher education and research institutions through metrics-based procedures of academic evaluation. These metrics-based procedures present themselves as neutral but end up favoring disciplines and areas of research that have the right academic and political credentials to obtain a good evaluation in national and global academic rankings. Official programs to build “world-class universities” and “world-class disciplines” are informed by this culture of metrics-based procedures, which tends to leave little room for the development of interdisciplinary fields of research that have still not been officially “rectified” and that continue to occupy a minor position in existing academic hierarchies and frameworks of evaluation, exemplified by STS. There are reasons to believe that such considerations played a central role in the translational struggles and negotiations leading to the closure of the STS Institute at Tsinghua University in 2018.

So far, we have analyzed the development of STS in China as a creative process of globalized translational struggles and negotiations that cannot be understood without taking into consideration the specificities of the Chinese academic and political context. We have developed this approach with Chinese materials but a similar translational approach could be applied to the rise of STS in other emerging contexts. One of the advantages of this constructive translational approach is that it generates a more pluriversal understanding of the global STS project ([Jensen et al. 2017](#)), showing how the field of STS is transformed as it moves across borders and is translated into different academic and political environments with particular histories. Taking into serious consideration this translational heterogeneity is a good starting point to move beyond the Western-centric framework of international STS exchanges.

Towards a More Symmetrical Framework of International STS Exchanges

In this final section, we will further consider: first, that China should be a priority in international efforts to promote the growth of STS outside European and North American contexts; and second, that promoting STS in China and other emerging contexts will require greater recognition of the global translational heterogeneity of the STS project. These two points will be addressed separately, but they are closely interrelated.

Expanding the reach of the field of STS to contexts outside Europe and North America is not just a matter of expanding the global reach of the field of STS; it is also a matter of epistemic justice. In the last two decades the field of STS has undergone a dramatic global expansion, but this process has been shaped by profound inequalities that favor knowledge structures, institutions, and objects of research associated with the historical West-European-North-American centers of the field ([Invernizzi et al. 2022](#); [Kreimer 2022a, 2022b](#)). This article joins a growing body of critical STS literature in multiple languages that is committed to countering these structural inequalities, while calling for the development of a more decentered framework of international STS exchanges capable of recognizing the existence of multiple STS globalized traditions outside the hegemonic European-North-American core areas. This intervention is not just a matter of epistemic justice; it is also a matter of creating a more diversified body of STS tools and infrastructures capable of dealing with the uncertainties of an increasingly globalized world order with multiple centers and growing geopolitical interdependencies (see also [Kreimer 2022a, 2022b](#)).

Creating a less Western-centric framework of STS international exchanges requires giving greater recognition to STS conversations taking place in the margins. Hereby focusing on China, we argue that China should be a priority in this agenda of STS pluralization and epistemic justice.¹¹ An important factor here is that China is occupying an increasingly central position in the global economy and is increasingly recognized as a global center of cutting-edge science and technology ([Huang and Sharif 2015](#)), but there is a second equally important reason. Engaging with STS developments in China is important because what happens in China in the present era of fast-paced globalization—as shown by the recent Covid-19 global pandemic—is closely connected to developments outside China due to increasingly complex local-global, center-periphery entanglements. This challenge of coping with an increasingly globalized world order with growing uncertainties and interdependencies makes the task of promoting STS outside North America and Europe particularly important and urgent, and again, we think that China should be at the forefront of this decentered agenda of STS internationalization.

This leads to our second and final point. How to facilitate and promote the growth of STS in a powerful country like China that competes with the United States for global supremacy, and that is governed by an authoritarian Communist Party that is on track to surpassing the longevity in power of the Communist Party of the former Soviet Union? Our suggestion is that strengthening the development of STS in China will require a new translation-focused understanding of the global dissemination of the STS project. Instead of relying on a vertical model of knowledge transfer from West to East, from North to South, from center to periphery, we should approach the development of STS in emerging contexts like China as creative processes of translational transformation. This emphasis on translational variations leads to a greater recognition of the value and the specificities of Chinese globalized STS instantiations. Acknowledging that the Chinese globalized STS instantiations have their own distinctive features and tensions, and learning how to take these specificities seriously, necessarily leads to a greater sense of flexibility and elasticity in international efforts to provide infrastructural assistance, and this is the kind of flexibility and elasticity that is necessary to deal with the administrative rigidity and the bureaucratic restrictions of the Chinese authoritarian political environment.

Instead of holding on to a very rigid and singular idea of what the field of STS is and how it should be defined, the international effort to promote STS in China should be marked by the kind of elasticity and flexibility that has become famously associated in the STS literature with the “Zimbabwe Bush Pump” and its capacity to travel in space and time ([de Laet and Mol 2000, 1](#)). This may also apply to the multiple conversations embodied in the globally heterogeneous STS project as they travel in space and time and emerge in contexts like China. A model of STS that is loosely bounded, adaptable, flexible and responsive ([ibid.](#)) may well gain greater traction in the Chinese authoritarian political environment than one which is firm, inflexible, and clearly bounded.

¹¹ While our focus is on China, a similar argument could be made in relation to India, Africa or Latin America.

Embracing this more fluid approach to what STS is and how it should be developed is a good starting point not only to engage with Chinese STS specificities, but also to look at this engagement as an opportunity to reflect critically on the role played by the analytical-institutional complex developed in the European and North American STS traditions in the reproduction of postcolonial intellectual asymmetries. Consider the example of the Chinese debate on the proposal of nativizing STS and turning it into an officially recognized discipline with “Chinese (Marxist) characteristics.” It is very tempting to argue that such a proposal is a reductionist endeavor. This was also the view put forward by many Chinese STS scholars, especially those outside the Marxist discipline of philosophy of science and technology. But this is not the only way to interpret the value of the proposal. An alternative interpretation is that the proposal’s emphasis on turning STS into an officially recognized Chinese Marxist discipline is a by-product of context-specific elements of the Chinese academic environment, including strong Party control and concern with official certification and the prominent position of the Marxist field of dialectics of nature in official disciplinary hierarchies. In this sense, placing STS within the Chinese Marxist tradition can also be read as an indicator of an alternative intellectual history that needs to be acknowledged and respected, but this does not mean that contemporary Chinese STS approaches are restricted to the Marxist tradition.¹²

Here we argue that engaging diplomatically with the translational specificities of the Chinese field of STS is a good example of the kinds of transnational communicative strategies that are needed to fully embrace what STS scholars John Law and Wen-Yuan Lin (2017) have called “a third postcolonial version of the principle of symmetry,” where the international STS community is encouraged to go further in the critical project of challenging enduring Western and non-Western intellectual asymmetries, bringing to light a more diverse non-Western-centric landscape of multi-directional and contested STS translational practices and traditions. In the last few years since the publication of Law and Lin’s influential article in the prominent East Asian STS journal, *East Asian Science, Technology and Society: An International Journal*, there emerged a number of transnational collectives that are closely aligned with the overall direction of Law and Lin’s post-colonial agenda of STS pluralization and epistemic justice, some of them focusing explicitly on Asia, and building on the vibrancy of already existing transnational STS infrastructures in and about the region. Just to give two examples, the three of us were involved in the creation of an Asia-focused transnational STS network in 2017, the *Sci-Tech Asia International Research Network*, and there is also the *TransAsiaSTS Network* that was formed in 2018 and that is part of the collaborative platform STS Infrastructures supported by 4S. These networks are actively calling for a less Western-centric framework of STS internationalization, but as STS scholar Pablo Kreimer (2022a) notes, it is not enough to call for more symmetry and for greater recognition of non-hegemonic STS formations. Even more important is to make systemic changes in the way the hegemonic order works for the purpose of countering the structural inequalities that continue to shape global frameworks of STS knowledge production and circulation.

¹² Moreover, one also needs to take into account the significance of pre-modern Chinese approaches and their potential role as sources of inspiration for the development of new critical perspectives on contemporary modernist ideologies of science and technology (Hui 2016).

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