

# Stanton Nuclear Security Fellows Seminar

---

## PANEL 4: Beyond the Horizon

### 1. Christopher Clary, RAND

#### *The Politics of Peace: The End of Nuclear Rivalries*

My dissertation asks how rivalries end. Rivalries are situations when elites in two states perceive the other state as a significant military threat, and take military and diplomatic steps to counter that danger. Rivalry termination occurs when the perceived military threat is reduced to such an extent that military conflict is viewed as unlikely, and both parties can move forward with an expectation of peace. Reaching the end of a rivalry often requires hard bargaining and concrete measures to reduce fears on the other side. This project examines under what conditions and how rivalries end.

This project focuses on nuclear rivalries, because nuclear weapons alter the parameters of conflict and multiply the risks of war. The most dangerous rivalries are between nuclear weapons states.

Additionally, since rivals often turn to nuclear weapons to alleviate their security fears, understanding the process of rivalry termination is important not just to reduce risks from extant nuclear rivalries but for preventing the emergence of new nuclear pairs in the international system.

Not all nuclear rivalries endure. Some nuclear rivals have set aside their disputes, while others persist in contention. This project exploits this variation in outcomes for its qualitative case selection. It focuses on five overlapping rivalries in Asia, with longitudinal case studies of the U.S.-Soviet Union, U.S.-China, China-Soviet Union, China-India, and India-Pakistan rivalries. It bolsters its findings from Asian nuclear rivalries with a broader quantitative analysis of all cases of rivalry termination in the post-World War II era.

This research suggests that two domestic factors are most closely associated with rivalry termination: (1) institutional arrangements that concentrate the authority to make foreign policy decisions and (2) domestic political or economic crises that motivate leaders to take conciliatory steps. Why? Rivalries generate domestic constituencies for their perpetuation. Leaders willing to pursue conciliatory policies must take substantial political risks to resolve long-running conflicts. If paralyzed by veto players within their foreign policy apparatus, they will be unable to reach agreement with old foes. If the situation at home is calm, leaders have little motive to undertake bold foreign policy action. Only when domestic economic or political troubles mount do leaders turn to rivalry termination as a means to free resources that can be used to bolster their support at home. Importantly, the research finds that the joint possession of nuclear weapons does not overwhelm the primacy of domestic determinants. Constituencies at home continue to advocate for rivalry persistence and pursue dangerous policies even after nuclear acquisition. While rivalry often leads to nuclearization, nuclearization does not lead states out of rivalry.

This work informs when rivalries are ripe for resolution and when rivalries will prove resistant to outside pressure. This can, in turn, help governments that seek to target diplomatic efforts to enhance regional and global security. The stakes are high. The advent of nuclear weapons suggests that so long as rivalry still generates violent interstate conflict, the worst-case scenarios can be catastrophically harmful. Effort to understand how rivalries end is urgently important.

## 2. Ariane Tabatabai, BCSIA

### *Islamic Bomb Forensics: The Strategic Implications of the Islamic Legal Debate Surrounding Nuclear Weapons*

#### **Abstract:**

The Iranian nuclear program and the challenge posed to nuclear security by non-state terrorist groups, such as Al-Qaeda, acquiring such weapons have generated substantial debate. While these two issues are poles apart, they have a common denominator: the use of the Islamic legal discourse to justify their respective leaderships' positions on the matter. Indeed, while the former presents Sharia law as a limiting factor, prohibiting nuclear weapons, the second has long justified its pursuit of a nuclear capability through the Islamic faith. A third actor, Pakistan, has not taken a stance on the legal debate, yet it became the first Muslim state to develop a nuclear arsenal, securing funding for its program by depicting it as the 'Islamic bomb.'

The question this dissertation attempts to answer is whether Islam does in fact govern the production, possession, and use of nuclear weapons, by prohibiting, tolerating, or rather encouraging the acquisition of such weapons. By doing so, it will identify and assess the potential strategic implications of this legal outcome, including the impact of the religious discourse on regional stability and national and international security.

#### **The reason why I chose this topic:**

The project builds on my Masters dissertation, a comparative study of the international legal norms governing the conduct of armed conflict and the Islamic tradition regulating warfare. In the chapter on weaponry, I assessed the rules and regulations of weapons of mass destruction, including nuclear weapons. The lack of academic and analytical work on the topic led me to undertake the research in the context of a doctoral dissertation.

#### **Methodology:**

The project encompasses a qualitative investigation covering both state and non-state actors empirically, drawing on primary and secondary sources, including documentation and semi-structured interviews. The methodology for the legal deductions will follow the generally accepted methods amongst international and Islamic jurists. These include deductions and analogical methods based on primary materials, such as the Qur'an, compilations of Ahādīth, and fātāwa for the Islamic component. The international legal part will include hermeneutical analysis of national constitutions, and various international legal agreements. The policy sections will include discourse analysis, based on government statements and reports. The secondary sources include scholarly and policy analysis and reports.

#### **Policy relevance:**

By investigating Al-Qaeda's nuclear aspirations, the Pakistani nuclear weapons program, and Iran's controversial nuclear program, this dissertation seeks to explore the role played by the legal Islamic discourse in the realm of policy. As such, the discourse's utilization by these actors to shape nuclear politics and its impact on nuclear policy are examined, while providing a better understanding of these

results and their consequences for policymaking in the West. To do so, the project undertakes to evaluate the implications of the Islamic legal discourse on such issues as:

- The domestic and international legitimacy of these nuclear programs,
- The conception and implementation of international legal instruments, such as the NPT, CTBT, Fissile Material Cut-off Treaty...
- The wider arms control and nonproliferation regime,
- A future disarmament process, particularly trust, confidence building, and consequently disarmament verification.
- The potential creation of a weapons of mass destruction-free zone in the Middle East, including confidence building and verification.
- International peace and security, regional stability, and the balance of power.
- Hence, the thesis will help inform international responses to nuclear challenges such as pursued by the P5+1 vis-à-vis the Iranian nuclear program.

#### **Target audience:**

Policymakers, political scientists, scholars, and analysts, from Europe and the United States, constitute the target audience.

#### **Hypothesis:**

The dissertation argues that with the advent of Islamism, its institutionalization and debates surrounding the implementation of Sharia across and beyond the Muslim world in recent years, Islamic law has become a major discourse shaping factor in international law and politics. The dissertation seeks to provide evidence of the relevance of Islamic legal narratives to nuclear proliferation, arms control, disarmament and confidence building. Indeed, the increasing radicalization of the Muslim world elevates the grounds for various state and non-state actors to justify their actions according to the Islamic faith. This discourse can provide such actors with the religious validation required for their nuclear programs or attempts to procure a nuclear capability, as well as legitimacy among the Ummah. Furthermore, the Islamic discourse adopted by Iran and Pakistan can undermine international law and trust among nations, and consequently challenge power dynamics in the Muslim world with implications for both regional and international security. Yet, a so-called Islamic regime stating officially that it will not pursue nuclear weapons, as they are prohibited by the faith cannot do so easily without any political implications and costs. Therefore, the role of such narratives within domestic and regional debates on the legitimacy of these countries' nuclear programs cannot be overlooked.

### 3. Nick Wright, CARNEGIE

#### *Strategy execution and the brain: managing international confrontations under the nuclear shadow*

##### Objectives

- To combine perspectives from the neuroscience of decision-making with varied historical cases, in order to identify and understand challenges to the management of international confrontations under the nuclear shadow;
- To formulate policy recommendations that enable policy-makers, in both the U.S. and China, to mitigate these challenges and help avoid inadvertent escalation;
- To provide new perspectives on mechanisms that drive escalation.

##### Overview

The likelihood of a nuclear confrontation between the United States and China may be small but is far from zero. There is near-term danger of instability in a crisis, for example over the Taiwan Strait or Senkaku/Diaoyu Islands, and medium-term potential for a newly confrontational relationship. Conflict between these nuclear powers is potentially catastrophic, and there are multiple paths to nuclear escalation. Threats or actual use of Chinese conventional ballistic missiles may, for example, play a prominent role in such a confrontation; and because China's command and control structures overlap with those for Chinese nuclear forces, a conventional confrontation that entails targeting of command and control could rapidly develop a nuclear dimension.

To help manage China-U.S. crises, regional experts have developed practical principles for use by both U.S. and Chinese planners.<sup>1</sup> One obvious example is the recommendation to think ahead through the consequences of one's actions. However, the policy problem that I address here is that the nature of human decision-making profoundly affects the implementation of such principles, in ways that could lead to inadvertent escalation, including to the nuclear level.<sup>2</sup> I characterise such challenges to implementation by applying perspectives from the neuroscience of decision-making, which I combine with data from varied historical cases. Based on these findings I make policy recommendations to aid decision-makers in implementing confrontation management.

Specifically, I explore cognitive challenges to the implementation of two practical principles recommended for U.S. and Chinese confrontation management in the Taiwan Strait.<sup>3</sup> I will demonstrate

---

<sup>1</sup> Michael D. Swaine, Touseh Zhang, and Danielle F. S. Cohen, *Managing Sino-American Crises: Case Studies and Analysis* (Carnegie Endowment for International Peace, 2006).

<sup>2</sup> To clarify definitions, by confrontation here I include both crises, such as that over Taiwan in 1995-6, as well as incidents of limited war. Escalation refers to an increase in a confrontation's scope or intensity considered significant by either participant. With regard to causes of escalation, I do not focus on either deliberate escalation (to gain advantage, avoid defeat or send signals) or accidental escalation (mistakes by operators, e.g. bombing wrong targets). I focus on inadvertent escalation, which is the mechanism that engages when a combatant deliberately takes actions that it does not perceive as escalatory but that the adversary does (Forrest E. Morgan et al., "Dangerous Thresholds," Rand, 2008). Note also that although I discuss a Taiwan Strait example, my findings would apply equally to a China-U.S. crisis sparked elsewhere, such as the Senkaku/Diaoyu Islands.

<sup>3</sup> Swaine et al., (2006)

how the implementation of each of these principles is affected by a key finding from neuroscience over the past two decades.<sup>4</sup> I briefly describe each below.

### **Principle 1: Tit-for-tat: implementation and “prediction errors”**

The first principle is to make a calibrated response to an adversary’s action, for example in a tit-for-tat manner.<sup>5</sup> Implementing this principle can be affected by a central cognitive feature of decision-making, the importance of “prediction errors”. Prediction errors can be simply defined as the difference between what you expect and what actually happens. They are central to brain function because to deal with the constant barrage of information we receive, the brain constantly uses models of the world to make sense of events (i.e. to make predictions), and in particular it notes when these models are wrong (“prediction errors”). The prediction error associated with an event modulates the impact that the event has on decision-making; and the bigger the prediction error, the bigger the impact. “Prediction errors” are central to the mechanisms by which humans and other animals understand, learn and make decisions about the world – a core finding in neuroscience over the past 15 years. Prediction errors can affect implementation when attempting to make a calibrated response to an adversary’s action, and here I describe two ways.

First, when we make actions in the world, we have good predictions of when, where and how those actions will likely take place. However, for the adversary our actions are less well predicted, and so have greater associated prediction error which imparts a greater psychological impact. Thus, because actions tend to have a greater impact on the adversary than is understood oneself, this can lead to inadvertent escalation – even when trying to implement tit-for-tat in ideal conditions. I examine historical cases including the placement of Soviet missiles on Cuba in 1962, and action-reaction during the Anglo-German naval rivalry before 1914. In a Taiwan Strait confrontation, for example, a Chinese conventional ballistic missile “shot across the bows” of a U.S. carrier fleet may have a similar inadvertently escalatory impact. Thus, when estimating the signalling impact of one’s actions, include that it will likely have a greater psychological impact on the adversary than understood oneself. Second, prediction errors provide a simple, more far-reaching framework that explains a wide variety of types of psychological effects on decision-making. For example, this framework includes a simple explanation for the psychological effect of surprise, a central concept in military strategy for millennia, with important implications for current U.S. and Chinese doctrine.

### **Principle 2: Thinking ahead: implementation and multiple neural decision systems**

It is obviously desirable to think ahead to try to identify potential consequences of the options one has available, in order to choose between those actions. Implementing this requires forecasting how an adversary will respond to possible moves one could make, and then one’s responses to the adversary’s moves, and so on. However, predicting how people will behave in real-life sequential action-reaction

---

<sup>4</sup> I focus here on implementation, so although the principles discussed relate to preventing escalation, the aspects of implementation considered here would apply equally if escalation were the desired aim.

<sup>5</sup> Note this only one possible aim. For example one may wish to respond with a reaction that has a greater impact than was received (e.g. for deterrent purposes); or lesser impact (e.g. for conciliatory purposes). But my ideas and recommendations apply equally in these other cases.

processes is difficult because multiple different brain systems interact to form people's choices, and all of these systems limit implementation in specific ways.

There is evidence for at least three distinct decision systems<sup>6</sup>: a simple "Pavlovian" system; a "habitual" system; and a more sophisticated goal-directed system. Taking the "habitual" system as an example, it values actions based only on their success in the past, and not on their potential outcomes in the current scenario. This can make thinking ahead difficult. It also helps explain the evolution of an adversary's decision-making over time, which can be used to predict their response to deterrent threats.

### Research design

I take key findings from the neuroscience of decision-making over the past two decades, and consider how these affect the implementation of sensible principles for confrontation management. To examine whether these ideas capture decision-making in international relations, I adopt a similar approach to that used in the seminal work of Robert Jervis that combined perspectives from cognitive psychology with varied historical cases across contexts.<sup>7</sup> However, here I use new perspectives from the neuroscience of decision-making, which have been enabled over the past two decades by technologies, such as brain imaging, that link human decision-making to a vast body of animal work. Further, to provide a practical focus for policy recommendations, I adopt an illustrative scenario: a near-term confrontation between China and the US over the Taiwan Strait.

### Research product

Using this work, I will produce an article length manuscript for publication consideration in a peer-reviewed international security journal. I have already used this work as the basis for seminars and discussions with U.S. policymakers involved in nuclear strategy and academics. I will organise larger public events in the U.S. to coincide with publication. I will expand the scope of my research to include other aspects of deterrence and produce a second manuscript for similar publication and events.

### Target audience

Various U.S officials have expressed their interest in the initial aspects of this work when I have presented it as talks or seminars, including those from the Department of Homeland Security, DoD, Air Force, NDU, the State Department and others. I have presented work to academic audiences (e.g. NYU, Virginia Tech, Harvard) and have been invited to speak at think tanks (e.g. Chatham House). I will also address policymakers and academic audiences in China, through the Carnegie-Tsinghua Centre in Beijing and personal contacts at Beijing University and elsewhere in East Asia.

---

<sup>6</sup> P Dayan, "The Role of Value Systems in Decision Making," *Better Than Conscious* (2008): 51–70.

<sup>7</sup> Robert Jervis, *Perception and Misperception in International Politics* (Princeton University Press, 1976).

## 4. Tong Zhao, BCSIA

### *Trust-Building in U.S.-China Nuclear Relationship: What Has/Has Not Worked and Why*

Commentators and experts frequently point to the lack of trust between the United States and China as a significant obstacle for U.S.-China cooperation on nuclear arms control and nonproliferation issues. The importance of building trust for promoting U.S.-China cooperation in the nuclear realm cannot be overstated. Even for the minimum purpose of avoiding inadvertent nuclear conflicts, some basic level of mutual understanding and tacit agreements on rules of engagement between the two countries is needed, which falls under the broadly defined concept of trust. For more challenging cooperation scenarios, trust is imperative for both countries to break out of their comfort zone and to embrace certain risks that are unavoidable but necessary for taking bold steps toward cooperation. In existing discussions, however, the concept of “trust” in the context of U.S.-China nuclear relationship has not been properly defined and studied, which prevents researchers from systematically examining the mechanism of trust-building in this specific issue area of the bilateral relationship. The lack of analytical research on this topic also makes it difficult for researchers to provide concrete policy recommendations for policy-makers on how to build a stable and cooperative U.S.-China nuclear relationship.

Therefore, this research seeks to achieve the following goals. Firstly, define the concept of trust in U.S.-China nuclear relationship and explain how it has been used to mean different things to different parties. It is necessary to note that this research looks specifically at trust between the nuclear and strategic communities between the two countries rather than the general political trust in the bilateral relationship. The stability and continuity of the nuclear and strategic communities in both countries and the clear boundaries that define these communities from other players make it possible to observe and analyze the development of the trusting-relationship between them. Furthermore, this research points out the importance of distinguishing two related terms from one another: confidence and trust. It explains how the two terms carry different connotations and implications in the context of U.S.-China nuclear relationship.

Secondly and most importantly, this research seeks to examine two main approaches of trust-building: the bottom-up approach and the top-down approach and to understand how successful each approach has been to facilitate the growth of trust in U.S.-China nuclear relationship during the past three decades. Proponents of the bottom-up approach believe that trust can only be built from bilateral engagement and cooperation at operational levels and would then spread upwards to facilitate the growth of trust at top decision-maker levels. In contrast, advocates of the top-down approach insist that trust should be built between top decision-makers first before it is possible to build trust between policy-practitioners at operational levels. Theories on the role of experts or “epistemic communities” and other trust-building mechanisms cannot adequately explain the evolution of the trusting relationship between the United States and China. Existing literature also fails to provide empirical evidence for either of the approaches. This research, as a result, aims to compare and examine the impact of these two approaches of trust-building in the context of U.S.-China nuclear relationship.



## Research Methodology

This research examines the two trust-building approaches by looking into three cases: U.S.-China negotiation on the Comprehensive Nuclear Test Ban Treaty (CTBT), U.S.-China engagement over the North Korean nuclear issue, and U.S.-China engagement on maintaining bilateral nuclear stability. These three cases represent the most important issue areas in the U.S.-Chinese nuclear relationship. They range from successful cases of cooperation to cases with mixed results and cases of unsuccessful cooperation, offering the opportunity to observe and compare the impact of different trust-building approaches. Specifically, this research uses content analysis to track the change of American and Chinese thinking on these issues and to understand how thinking has been influenced by mutual engagement at operational levels. It uses process tracing to examine the role of top political leaders in successful and unsuccessful cases of mutual reciprocity.

## Expected Results/Findings

The preliminary results show that both approaches of trust-building have serious problems when they are applied to U.S.-China nuclear relations, although the bottom-up approach demonstrates a better long-term potential for promoting trust.

The top-down approach appears to break down in practice for two reasons: (1) top political leaders fail to reciprocate adequately following the other side's first move, and (2) the established model of conducting arms control discourages risk-taking in cooperation. The bottom-up approach is effective in cultivating epistemic communities that share a common language and good personal relationships, but is less successful in spreading trust beyond the communities themselves. The bottom-up engagement shows evidence of being able to promote empathy and gradually influence long-term beliefs of each other on key arm control issues.

## Policy Contribution

Mutual trust is a necessary condition for U.S.-China cooperation on important nuclear arms control and nonproliferation issues in the future – making cooperative efforts to limit nuclear arsenals, maintaining strategic stability under challenges of missile defense and advanced conventional weapon technologies, coordinating policy on the Korean Peninsula to maintain regional stability, etc. However, the existing discussion on trust-building is too general to provide specific guidance for policy-makers on how to effectively promote trust in the U.S.-China nuclear relationship. By studying U.S.-China engagement on some of the most important nuclear arms control and nonproliferation issues over the past three decades and by tracking the results including the change of thinking on both sides, this research draws conclusions on what impact each trust-building approach has achieved and points out factors that have prevented them from being more effective in promoting mutual trust. This will offer concrete policy recommendations for policy-makers and practitioners in both countries on how to manage their future engagement with each other and to grow trust in this process.

## Target Audience

I plan to write up my PhD dissertation based on this research. I will present case studies and preliminary finding at academic and policy conferences in the nuclear and international security field such as PONI (Project on Nuclear Issues, CSIS) conferences and the International Studies Association annual

convention. Feedback from these presentations will be incorporated into the research and writing. After the dissertation is finished, I plan to present the findings to various academic organizations, think tanks, and government agencies both in the United States and China.