



The Joseph Needham Foundation for Science & Civilisation (Hong Kong)

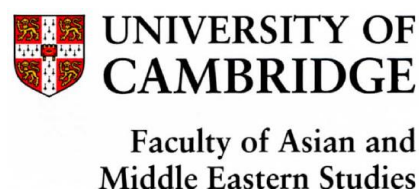
李約瑟科技與文明基金會

and

The Needham Research Institute (Cambridge)

李約瑟研究所

*Jointly with*



*Present*

## **Needham's Dialogical Vision: Understanding Science as a Multi-Civilizational Outcome**

The Hong Kong University of Science and Technology

23 – 24 March 2023

*& Jointly with*

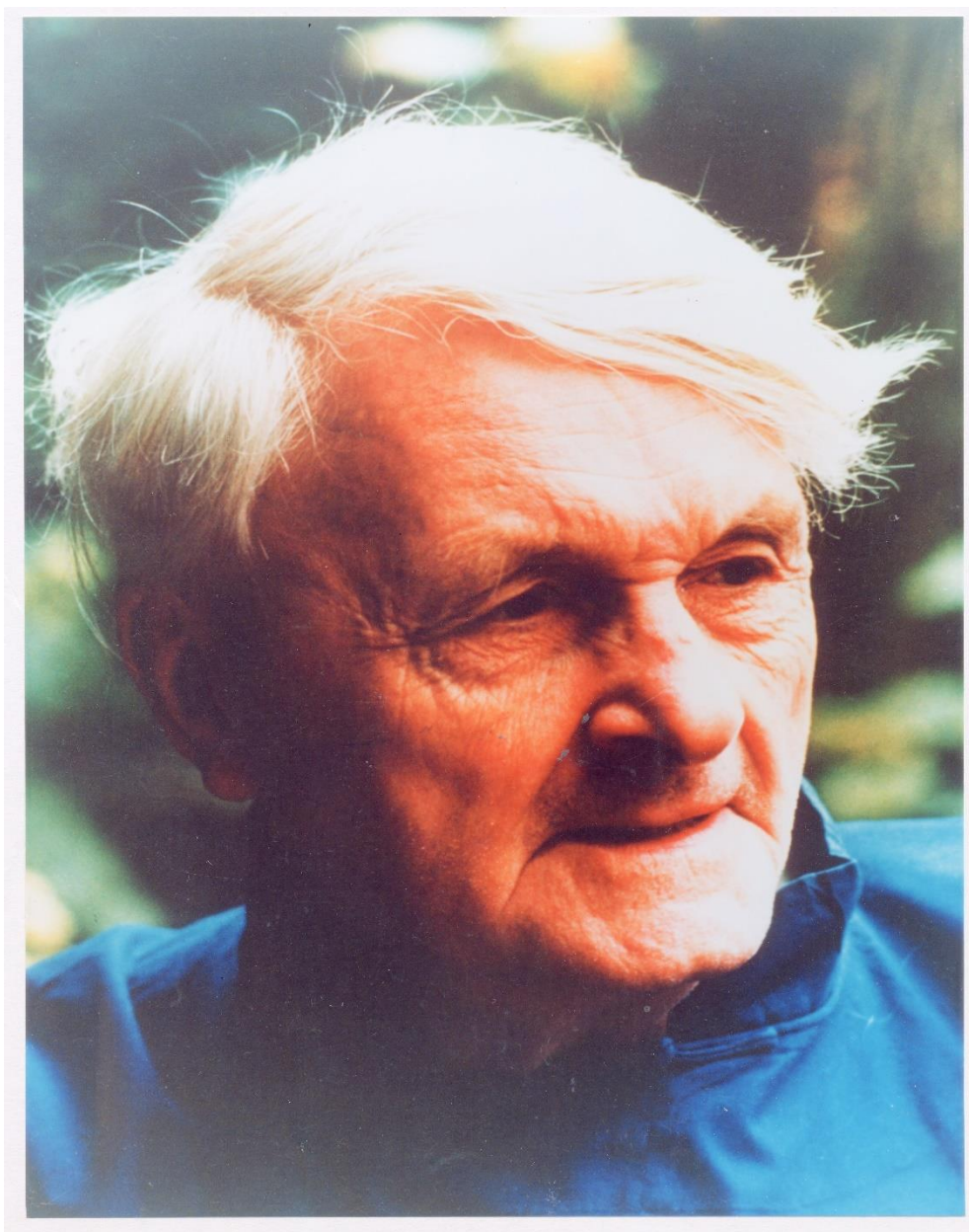


*present*

## **The 13<sup>th</sup> Joseph Needham Memorial Lecture Series**

Hong Kong Palace Museum

25 March 2023



# Dr. Joseph Needham

C.H., F.R.S., F.B.A., Sc.D., Hon. Litt.D.  
(9 December 1900 – 24 March 1995)

**Joseph Needham, F.R.S., F.B.A.  
Scientist, Humanist and a Great Intellectual**

When Joseph Needham died on 24 March 1995, at the age of 94, the world lost one of its greatest scholars.

Armed with self-taught linguistic skill in classical Chinese, he was the first Western scholar to conduct a comprehensive and comparative study of the history of Chinese science and technology relative to the rise of modern science. By citing many modern scientific and technological advances that originated in ancient China, he authoritatively dispelled a long-held view in the West that China had no science nor made any contribution to modern science.

Joseph Needham, together with his many distinguished collaborators, demonstrated that China and the Near East had made many outstanding contributions in the transformation of ancient to modern science. His monumental work *Science and Civilisation in China* has been characterized as “perhaps the greatest single act of historical synthesis and inter-cultural communication ever attempted ...”.

Joseph Needham was born in London on 9 December 1900, the only son of a highly successful Harley Street medical specialist in anesthesia, and an accomplished musician. He was destined for medicine when he entered Gonville and Caius College of Cambridge University. However, he was soon attracted to the evolving modern science of biochemistry and received a Ph.D. in Chemical Embryology in 1924. His research in the subject was so widely acclaimed that it earned him recognition as the father of chemical embryology. A Foreign Service assignment to China in the early 1940s cemented his fascination with the history of science in China, the field that would dominate his research for the rest of his life.

After the War, he briefly served as the first Director of the Department of Natural Science at the newly formed UNESCO in Paris from 1946 to 1948. Thereafter, he returned to Cambridge, where he was Sir William Dunn Reader in Biochemistry until 1966, and Master of Caius College for 10 years until his retirement in 1976.

He and his wife, Dorothy Moyle, herself an authority in muscle chemistry, were both elected Fellows of the Royal Society in 1941 and 1948, respectively, the first couple ever honored for their scientific contributions by the coveted organization.

Joseph Needham's association with the study of ancient Chinese science and technology was truly unique. In 1937 he met three young graduate students from China doing doctoral research in biochemistry at Cambridge University. Their arrival at the laboratory completely changed his life. Of the three, Lu Gwei-Djen had the most profound influence on him. She challenged him to explore the tremendous advances and contributions of ancient Chinese medicine, science and technology to the rise of modern science, and encouraged him to study Chinese, which he followed and subsequently mastered so well that he could easily read classical Chinese texts without assistance. With his scientific knowledge and language ability, he was dispatched to China as the Scientific Counsellor at the British Embassy in Chongqing during the Second World War. In this position he provided scientific advice to the then Kuomintang government, and from this position, he rendered a wide range of assistance to scholars, doctors, and others in war-torn China between 1943 and 1946. In appreciation, many scholars gave him original manuscripts, scrolls, and classical Chinese texts that formed the bulk of his collection and reference materials for his work in the *Science and Civilisation in China (SCC)* series, and also served as the foundation for the East Asian History of Science Library in Cambridge.

In the meantime, Dr. Lu, after earning her doctorate in nutritional biochemistry at Cambridge, went on to further academic research in the United States during the Second World War and later in the Secretariat of UNESCO in Paris. She was equally influenced by Joseph Needham's new field of interest and eventually returned to Cambridge in 1957 to become his closest assistant and collaborator in the *SCC* series, and moreover, married him in 1989 after the death in 1987 of Dorothy Moyle Needham. This happy marriage, unfortunately, did not last long, as Dr. Lu-Needham herself passed away in 1991, leaving Joseph emotionally drained until his own death in March 1995.

Joseph Needham was highly respected by both Beijing and Taipei, and received a host of honorary degrees too many to cite here. He was President of the International Union of the History of Science from 1972 to 1975; the first foreign member and Honorary Professor of the Chinese Academy of Sciences and the Chinese Academy of Social Sciences, respectively. He also received the Order of the Brilliant Star from Taiwan. Apart from being elected an FRS in 1941 he was also elected a Fellow of the British Academy in 1971. In 1992 he was elected a Companion of Honour, and was awarded the UNESCO Einstein Gold Medal in 1988.

A man of remarkable energy with an insatiable drive to learning, he could communicate readily in eight languages. A deeply religious Anglican and lay preacher, he will always be remembered as a bridge-builder between the East and the West.

## ***The Chairman's Welcoming Remarks***

On behalf of the Conference Co-Organizers, I am honored to warmly welcome you to Hong Kong, trust that your stay here will be a most pleasant, safe, and rewarding one, and that you will find time to explore the rich cultural heritage of Hong Kong, intellectually and culturally before your departure!

The Conference will focus firstly on the theme **Needham's Dialogical Vision: Understanding Science as a Multi-Civilizational Outcome** as presented by over 20 distinguished scholars in the field at HKUST during the first 2 days. The themes are to explore the rise of Modern Science, not just Western-centric, but a mixture of ancient Chinese, Indian, Arabic and Persian and other civilizations. The planned multi-panel discussions should offer excellent platforms for wholesome intellectual discussions.

The Conference will end with the **13<sup>th</sup> Joseph Needham Memorial Lecture Series** on the third day, 25 March at the Hong Kong Palace Museum for the particular reasons below.

During his ice-breaking visit to China in 1943-46, Dr. Needham together with his then newly hired assistant H.T. Huang (Huang went to Oxford in 1944, received his PhD and eventually became a close collaborator with the SCC Vol.6: *Food Fermentation Technology*, also served as Deputy Director of the Needham Research Institute in the late 1980s) embarked on a long and strenuous trip to Dunhuang in a charcoal-fired truck that frequently broke down along the rough terrains.

The Dunhuang trip contributed immensely to Dr. Needham's conversion from his active biochemical research into the studies of ancient Chinese science and technology, origins of the monumental series *Science and Civilisation in China*.

On behalf of the Organizing Committee, we are indebted to the generous financial support from the Bei Shan Tang Foundation, Croucher Foundation, and Jao Studies Foundation. Moreover, we would like to express our appreciation to The Hong Kong University of Science and Technology for co-hosting the Needham Conference and the Jao Tsung-I Petite Ecole and the Hong Kong Palace Museum for co-organizing the 13<sup>th</sup> Joseph Needham Memorial Lectures.

Peter L. Lee, Ph.D.

Chairman, Joseph Needham Foundation for Science & Civilisation (JNFSC) &  
Conference Organizing Committee

## Needham Conference 2023 Organizers

The Joseph Needham Foundation for Science and Civilisation (JNFSC)

The Needham Research Institute (NRI)

The Hong Kong University of Science and Technology (HKUST)

Jao Tsung-I Petite Ecole, The University of Hong Kong

Faculty of Asian and Middle Eastern Studies (FAMES), University of Cambridge

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*Needham Research Institute (NRI)  
Director of Chinese Research Center, The  
ISF Academy*

Ms. Celine LEE

*Secretariat Coordinator, JNFSC*

## ***Needham Conference 2023 Background***

Throughout his monumental work on the series *Science and Civilisation in China* – henceforth labeled ‘SCC’ – which he began in the late 1940s and continued until his death on 24 March 1995, Dr. Needham constantly asked and reflected on why ancient Chinese science and technology which was ahead of the West from the 2<sup>nd</sup> century CE fell behind after the 17<sup>th</sup> century, and largely missed the transition to modern science. Needham’s so-called “Grand Comparative Question” continues to be the subject of lively discussion and debate in many international forums today.

In July 2015, the 20<sup>th</sup> death anniversary of Dr. Needham, a group of his “SCC” collaborators and close associates gathered at the Needham Research Institute to reflect on the Needham heritage, and ways of carrying his legacy forward in new directions beyond the focus of his comparative question.

In March 2018, in conjunction with the 12<sup>th</sup> Joseph Needham Memorial Lecture in Hong Kong, the JNFSC organized jointly with the Needham Research Institute, the Chinese University of Hong Kong, and the Hong Kong University of Science and Technology, a conference “Joseph Needham Symposium on Early Cultural and Scientific Transmission across Eurasia with Asia”.

Shortly thereafter, the JNFSC/NRI believed it was time to revisit the comparative question in a conference jointly organized with the University of Science and Technology Beijing and the University of Chinese Academy of Sciences. It was also designed to commemorate Needham’s 25<sup>th</sup> death anniversary in Beijing on 23–25 March 2020. But the scheduled conference had to be unfortunately cancelled owing to the outbreak of the coronavirus-19 global pandemic.

However, by the time an organizing committee was convened for a new conference it became evident that the impetus of Needham’s comparative question had become less urgent. A vast body of literature had emerged since Needham’s pioneering work, in part inspired by his groundbreaking efforts and inspiration, which showed that what was important was to understand how interconnections of civilizations over the last three thousand years, and the exchanges of cosmological, mathematical, geographical, physical, biological and medical technologies, techniques, practices and knowledge, had been woven together to make modern science possible. Although Needham himself had on numerous occasions stressed the importance of the connected history of science and technology, and the circulations of know-how and knowledge with associated dialogical exchanges, this crucial dimension of science history has hitherto been marginalized by the overemphasis on his comparative question.

The forthcoming conference on *Needham’s Dialogical Vision: Understanding Science as a Multi-Civilizational Outcome* will address Needham’s dialogical question of how and why such exchanges across cultures came to enrich modern science today.



## ***Structure of Themes for Needham Conference 2023***

To address the dialogical dimension of Needham's vision, the organizing committee settled on five themes. These themes drew upon the way Needham framed his SCC project into 7 volumes as shown below:

**Theme 1:** Historical Sociology in Dialogue – Vols. 1&7: *Introductory Orientations and The Social Background*

**Theme 2:** Cosmologies in Dialogue – Vol. 3: *Mathematics and the Sciences of the Heavens and Earth*

**Theme 3:** Natural Sciences in Dialogue – Vols. 4 & 5: *Physics and Physical Technology & Chemistry and Chemical Technology*

**Theme 4:** Medical Traditions in Dialogue – Vol. 6: *Biology and Biological Technology*

**Theme 5:** Modes of Inquiry in Dialogue – Vol. 2: *History of Scientific Thought*

These themes have largely been approached through a comparative perspective with the view to addressing Needham's comparative question "Why did modern science develop in Europe but not in China or any other major Eurasian civilisation?" By contrast the proposed conference will focus on Needham's dialogical question "How and why were China, and other major Asian civilisations, able to articulate knowledge that subsequently came to enrich modern science?"

The themes selected for the conference, by ranging over all the seven volume headings of Needham's SCC, carry Needham's project forward in two directions – advancing his dialogical vision of the growth of science, and his multi-civilizational perspective of modern science.

**Speakers:** The Needham Conference 2023 will bring together more than twenty leading scholars from across the world to address these themes. Their international airfares (Economy Class) to/from HK, and local lodgings and accommodations will be covered by the Organizers.

**Needham Scholars:** As part of our concluding session, there will be a roundtable exchange to include a group of young and future "Needham Scholars", as part of the JNFSC mission to establish a community of "Needham Scholars".

**Publication:** We plan to publish the Conference Proceedings within 1.5 – 2 years. The conference organizers hope that exploring this new reorientation of Needhamian studies, which focuses upon his dialogical question rather than his comparative question, will lend impetus toward projecting the relevance and rich legacy of Needham's scholarly work for modern science studies even further than hitherto envisaged.



## *Needham Conference 2023 Program*

**Thursday 23 March, HKUST Jockey Club Institute for Advanced Study**

**08:30-09:00    Registration and Refreshments**

**09:00-09:15    Welcoming & Introductory Remarks**

**Dr. Peter L. LEE**, Chairman, JNFSC & Chair, Needham Conference  
Organizing Committee

**Professor Nancy Yuk-Yu IP**, President, The Hong Kong University of  
Science and Technology (HKUST)

**Professor Martin JONES**, Chairman, Needham Research Institute

**09:15-09:45    Professor LEE Chack-fan, Chairman, Director of the HKU – Jao  
Tsung-I Petite Ecole  
Opening Keynote Address**

**09:45-10:00    Tea Break**

**10:00-11:30    Panel 1: Historical Sociology in Dialogue (Chairperson: Arun BALA)**

*10:00    Prasenjit DUARA, Duke University, United States of America  
“The Oceanic Paradigm of Historical Flows”*

**Raymond W.K. LAU, Hong Kong Metropolitan University, Hong  
Kong**

*“Revisiting the Needham Question: Beyond Transmissionism in Critiquing  
Eurocentricism”*

**Tung-yi KHO, Lingnan University, Hong Kong**

*“Extending Needham’s Vision of Science: A Decolonial Perspective”*

*11:00    Questions & Answers*

**11:30-13:30    Group Photo & Lunch**

**13:30-15:00    Panel 2: Cosmologies in Dialogue (Chairperson: Roger HART)**

*13:30    Bill M. MAK, Needham Research Institute, Cambridge, United  
Kingdom / The ISF Academy  
“Persian Astronomy in China”*

**Keekok LEE, University of Manchester, United Kingdom**

*“Needham’s Question: Did Needham Need to Pose It? Is it Misposed?”*

**Ryuji HIRAOKA, Kyoto University, Japan**

*“Sufera-no nuigaki (Selection on the Sphere): A newly discovered Japanese cosmology textbook to the Jesuits during Japan’s “Christian Century”*

**14:30 Questions & Answers**

**15:00-15:20 Tea Break**

**15:20-16:50 Panel 3: Cosmologies in Dialogue** (Chairperson: **Imre GALAMBOS**)

**15:20 George SALIBA, American University of Beirut, Lebanon**

*“Needham’s Question from Perspective of Islamic Science”*

**John STEELE, Brown University, United States of America**

*“The Circulation of Babylonian Astral Science with some comments on ‘Questions’ in the History of Science”*

**Jongtae LIM, Seoul National University, South Korea**

*“Scientific Exchanges with Qing China and the Formation of Local Science in Eighteenth-Century Korea”*

**16:20 Questions & Answers**

**16:50-17:10 Tea Break**

**17:10-18:40 Panel 4: Natural Sciences in Dialogue** (Chairperson: **Raymond W.K. LAU**)

**17:10 Roger HART, Texas Southern University, United States of America**

*“Understanding Science as a Multi-Civilizational Outcome: The Early History of Linear Algebra”*

**George Gheverghese JOSEPH, University of Manchester, United Kingdom**

*“Liberating Mathematics from Civilizations”*

**Nader EL-BIZRI, University of Sharjah, United Arab Emirates**

*“The Physiology and Psychology of Vision in Ibn al-Haytham’s Optics”*

**18:10 Questions & Answers**

**19:00-21:30 Conference Dinner**

**Friday 24 March, HKUST Jockey Club Institute for Advanced Study**

**08:30-08:50    Registration**

**08:50-10:20    Panel 5: Natural Sciences in Dialogue** (Chairperson: **Gordon McOUAT**)

**08:50    Hyunhee PARK, City University of New York, United States of America**  
*“Practical and “Precise” Geographic Knowledge of the World Developed in the Premodern Chinese and Islamic Worlds through Multi-Civilizational Connections and Contacts”*

**Joseph Cheng-Yih CHEN, University of California San Diego, United States of America**  
*“Certain Joseph Needham’s Views and Achievements in the History of Science and Technology in China”*

**Marco CABOARA, The Hong Kong University of Science and Technology**  
*“Connected Cartographies: A Jesuit 17<sup>th</sup> Century Manuscript Map of East Asia and its East Asian Sources”*

**09:50    Questions & Answers**

**10:20-10:40    Tea Break**

**10:40-12:40    Panel 6: Medical Traditions in Dialogue** (Chairperson: **Keekok LEE**)

**10:40    Hans POLS, University of Sydney, Australia**  
*“Dialogues Among Healers: Herbal Medicine in the Dutch East Indies during the 19<sup>th</sup> Century”*

**Bridie ANDREWS, Bentley University, United States of America**  
*“Rethinking Mutual Medical Influence Between China and the West”*

**Wen-Hua KUO, National Yang-Ming Chiao Tung University, Taiwan**  
*In Search for the Right Point: Refashioning Acupuncture with Experiments and Standards*

**Imre GALAMBOS, University of Cambridge, United Kingdom**  
*“The Survival of Old Book Forms on the Peripheries”*

**12:00    Questions & Answers**

**12:40-14:00    Lunch**

**14:00-16:00    Panel 7: Modes of Inquiry in Dialogue (Chairperson: Bill MAK)**

*14:00*    **H. Floris COHEN, Utrecht University, Netherlands**  
*“Dialogue and Comparison Compared”*

**Arun BALA, Independent Scholar, Singapore**  
*“Explaining the Rise of Modern Science: A Dialogical Perspective”*

**Sundar SARUKKAI, Formerly, National Institute of Advanced Studies, India**  
*“Mathematics in India: Some Conceptual Themes”*

**Gordon McOUAT, University of King’s College / Dalhousie University, Canada**  
*“From Unilinear Lineages to Indira Nets: How an East/West Encounter Offered a New Model of Knowledge Encounter and Exchange”*

*15:20*    **Questions & Answers**

**16:00-16:30    Tea Break**

**16:30-18:00    Wrap-Up & Roundtable Wrap-Up with Young Needham Scholars**

**18:00-18:30    Break**

**19:00-21:30    End of Conference Informal Buffet Dinner**

## *Abstracts*

### **Day 1: Thursday 23 March**

#### **10:00-11:30 Panel 1: Historical Sociology in Dialogue**

##### **“The Oceanic Paradigm of Historical Flows”**

*Professor Prasenjit DUARA, Duke University*

Needham famously depicted the scientific history of the world until the modern scientific revolution as one of various civilizational rivers flowing into the vast ocean of science. I wish to extend and deepen the metaphor of the ocean to explore whether it can capture more of what we now know about the flows of historical, including scientific and technological processes.

I develop a methodology of historical sociology that I call circulatory histories. Empires and nations and smaller polities have not developed historically, contra the claims of contemporary national histories, as originary events, forces and processes that progress or leap in a linear, tunneled manner. Rather, histories take a circulatory form: emerging in place A, they move to place B, C or E where, interacting with other local processes and structures, they take on a different form and circulate on. On occasion, this circulatory process may return to place A whether they are recognized or acknowledged as having emerged from there.

This kind of circulatory history does not privilege notions of *ownership* of historical processes or the issue of historical origins which often become foundational claims of *sovereignty*. Rather, this history may be better understood through a paradigm of oceanic flows where an event ripples or crashes across multiple boundaries, flows into other currents or eddies, or sinks into the thermohaline depths which can upwell in another space. The effort in this paper is to outline the different modes which circulatory processes undergo and transform. Oceans display spatio-temporal patterns that display both stability as well as interactive change.

##### **“Revisiting the Needham Question:**

##### **Beyond transmissionism in critiquing Eurocentrism”**

*Professor Raymond W. K. LAU, Hong Kong Metropolitan University*

Needham remained influenced by Eurocentrism, although he called for overcoming it. Critics of Eurocentrism have taken up this call and argue for what we call the inter-civilizational cross fertilization (ICCF) perspective, pointing out the role of knowledge transmissions from non-European civilizations to Europe in the rise of modern science. Contemporary Eurocentric scholars, on the one hand, critique the ICCF perspective on the bases of the issue of evidence and of the purported culture-boundedness of scientific knowledge; and, on the other, insist on the importance of scholarly tradition, values, drives and so on with reference to Europe. Many ICCF supporters refuse to consider the last-mentioned variables as they are invariably interpreted in essentialist terms, and hence are forced to rely exclusively on the above-mentioned knowledge transmissions. We call this position transmissionism. Both Eurocentrism and transmissionism are misguided. With regards to Eurocentrism, the issue of

evidence is misconceived by Eurocentric scholars while the argument of culture-boundedness is conceptually mistaken. With regards to transmissionism, scholarly tradition, etc. indeed constitute important explanatory variables, and not taking them into account weakens the ICCF perspective. With regards to both Eurocentrism and transmissionism, these variables can be fully accounted for in non-essentialist terms. By going beyond transmissionism in critiquing Eurocentrism, the ICCF perspective is strengthened.

### **“Extending Needham’s Vision of Science: A Decolonial Perspective”**

*Dr. Tung-yi KHO, Lingnan University*

I present a decolonial perspective of Needham’s question about science and global history; namely, “Why did modern science develop in Europe but not in China or elsewhere?”

A decolonial perspective begins by recognizing that modernity and coloniality are coeval. As modernity was being accomplished and celebrated by the West, its darker side – coloniality – was simultaneously being experienced, especially by non-Western societies (Quijano). To be sure, coloniality is the darker side of modernity (Mignolo) and is implicated not only in political economy but also in cultural and knowledge production.

Needham’s perspective appears problematic because of the two premises undergirding his question: first, that modern science represents the pinnacle of knowledge; and second, that because modern science was first ‘discovered’ in the West, the latter represents the apotheosis of civilization. He seems to regard the West – in being modern – as the standard bearer of knowledge and culture.

Hence, even as Needham has importantly contributed to the inter-cultural study of science and global history, my presentation suggests why such a line of inquiry is misplaced to begin with. In so doing, and with reference to Chinese examples, it offers a more expansive understanding of science and civilization.

## **13:30-15:00 Panel 2: Cosmologies in Dialogue**

### **“Persian Astronomy in China”**

*Dr. Bill M. MAK, Needham Research Institute / The ISF Academy*

During the Tang period, the Persians were an important group of foreigners whose distinctive cultural identity was recognized and held in high esteem by some Chinese elites. Unlike the Indians whose influences to China were largely mediated through religion, namely Buddhism, the Persians were prominent in the fields of astronomy, medicine, and commerce. This paper examines the early history of Persian astronomers in China from the Six Dynasties to early Song by contextualizing their presence within the broader picture of knowledge transfer in Eurasia, focusing on these foreign astronomers’ lives, works, and interaction with the Chinese. Although their impact to Chinese astronomy and culture appear to be minimal, their tradition was later seen by the Perso-Islamic astronomers in China from the Yuan period onward as the antecedent to their astral science, exemplified by works such as the *Ming Translation of An Astral Treatise* (*Mingyi tianwen shu* 明譯天文書) and the *Huihui Canon* (*Huihui li* 回回曆).

## **Needham's Question: Did Needham Need to Pose It? Is It Misposed?**

*Professor Keekok LEE, University of Manchester*

Needham's Question/NQ is obfuscating as it has missed more than one opportunity for dialogical encounters between Europe and China in science-and-technology, namely with quantum physics and epidemiology. With Chinese Medicine/ChM, Needham has failed to grasp that it has already emerged some two thousand years ago as a system of medicine, though not one conforming to the positivist Newtonian Paradigm of Scientificity. Failure to grasp this led him to pose the NQ, as the NQ would be superfluous once this point is fully grasped. It is also the case that the NQ taken in conjunction with some of his other writings implies that he leant on Essentialism of Method and therefore manifested Coloniality, thereby rendering his scientific oecumenism flawed. However, Needham also showed moments of great prescience as he postulated that Science-and-Medicine were dynamic and could change in the future. Indeed, around the time of his death, Biomedicine was about to show signs of shifting from the Newtonian to a post-Newtonian Paradigm based on the findings of the Human Genome Project. Ironically, ChM, by standing still, has now emerged at the cutting edge of Science-and-Medicine – both medicines appear to sing from the same hymn sheet in acknowledging Personalised/Individualised Medicine and Preventive Medicine as central concepts operating within a non-linear model of causality.

## **“*Sufera-no nuigaki* (Selection on the Sphere): A newly discovered Japanese cosmology textbook to the Jesuits during Japan's “Christian Century” (c. 1549-1650)”**

*Professor Ryuji HIRAOKA, Kyoto University*

This paper discusses the contents of a Japanese cosmology treatise *Sufera-no nukigaki* (Selection on the sphere), recently discovered in Germany. It was composed by the Jesuits as a cosmology textbook for Japanese students sometime around 1600, roughly at the same time as, or even before, Matteo Ricci began composing scientific treatises in China. With the appearance of the *Sufera-no nukigaki*, it becomes possible to discuss the early history of the Jesuits' introduction of Western science to East Asia from a more multilingual and cross-boundary perspective.

The main purpose of this paper is to examine the textbook from the following aspects: 1) the historical background, 2) the editor Pedro Morejón (1562-1639) and the problems related to its compilation, 3) the contents and translation, especially in terms of comparison with the Latin original *De sphaera* (On the sphere) and the later revised Japanese version *Nigiryakusetsu* (Outline of the heaven and earth), 4) the use and influence in succeeding periods.

## **15:20-16:50 Panel 3: Cosmologies in Dialogue**

### **“Needham's Question from the Perspective of Islamic Science”**

*Professor George SALIBA, American University of Beirut*

In this powerpoint-supported talk, I will address Needham's question from the perspective of the history of Islamic Science. I will explore the reasons why Needham's question is still relevant to historians of Islamic science engaged in identifying the reasons that led to the



decline of that science and the time when that decline took place.

When Needham was in the process of formulating his famous question, he had already come to the realization that the three major scientific traditions that he considered at the time, namely the Chinese, the Indian and the Islamic traditions, were more or less, all on equal footing just at the dawn of modern science.

But being mainly concerned with the development of Chinese science, he “quickly” moved to the exploration of the inherent structural reasons within the said three scientific traditions, especially the Chinese, that did not allow modern science to materialize in all three of them, and to wonder why only the European tradition managed to produce what was later known as modern science. In this talk I will explore why Needham’s exploration failed to answer his own question and will argue that his inner structural exploration had neglected to take the wider scope and focus on one of the most essential features of the problem, namely, the global economic conditions of the sixteenth century which brought about the necessary ingredients that favored the rise of modern science in Europe and not in the other traditions.

**“The Circulation of Babylonian Astral Science  
with some comments on ‘Questions’ in the history of science”**

*Professor John STEELE, Brown University*

A large body of textual evidence allows a fairly detailed – though far from complete – reconstruction of the history of the development and practice of astronomy and astrology in Babylonia. As has long been known, due to the work of Otto Neugebauer, Bartel L. van der Waerden, David Pingree, and Alexander Jones, certain parts of Babylonian astral science circulated across the eastern Mediterranean and to Iran and India. In this paper, I will examine some examples of the circulation of Babylonian astral science and its adaptation and assimilation into other cultures. In particular, I will address the question of whether it is useful – or even meaningful – to talk about this material as being ‘Babylonian’ once it is found in other cultures and written in other languages. In the context of the preceding discussion, I hope to make some comments on Needham’s approach by contrasting it with his contemporary and equally influential scholar of early science, Otto Neugebauer, and discuss why there is no ‘Neugebauer question’.

**“Scientific Exchanges with Qing China and  
the Formation of Local Science in Eighteenth-Century Korea”**

*Professor Jongtae LIM, Seoul National University*

This paper contributes to Needham’s “dialogic perspective” in the history of science by elaborating the politico-cultural dynamics of scientific exchanges between the Qing and Korea in the early decades of the eighteenth century. The stabilization of the Qing imperial order at that time allowed increased opportunities for astronomers, scholar-officials, and Western priests from the two countries to exchange knowledge and techniques through government projects in geography and astronomy. In examining those projects through which the Sino-European science of the Qing was transferred to a tributary state, this paper focuses on the role of Korean actors who, despite being the weaker party, nevertheless led these

scientific exchanges. Crucial to this knowledge transfer, this paper argues, was their double practice of crossing and constructing boundaries between different scientific communities. While trying to circumvent the constraints imposed by Qing agents to protect their political and epistemic privileges, Korean actors also used the exchanges to build a local “Eastern” science with its own cultural identity and scholarly agenda, within which they acted as knowledge producers rather than mere importers of metropolitan science.

## **17:10-18:40 Panel 4: Natural Sciences in Dialogue**

### **“Understanding Science as a Multi-Civilizational Outcome: The Early History of Linear Algebra”**

*Professor Roger HART, Texas Southern University*

This paper is divided into three parts. Part I argues that the best currently available evidence for “understanding science as a multi-civilizational outcome” is the early history of linear algebra: linear algebra first developed in China; it circulated to Europe by the late Middle Ages; linear algebra is a core field of modern mathematics and one of the mathematical foundations of modern science; linear algebra is also one of the foundations of twentieth century quantum mechanics and plays an even more important role in twenty-first century quantum information sciences. In the terminology of this conference, then, we must conclude that modern science has always been “dialogical.” But if modern science has always been “dialogical,” Part 2 analyzes the non-dialogue between historians, namely the dismissal by “comparativists” of the findings of historians of non-Western science. I focus on the response to my findings by H. Floris Cohen, concluding that his claims about a unique “Scientific Revolution” in the “West” seem impervious to historical and mathematical facts. If this non-dialogue of historians is a rule rather than an exception, Part 3 revisits Needham’s questions on the eve of the Asian Century and Second Quantum Revolution to argue that just as hagiographies of individual scientists were overturned by the history of science in the late twentieth century, so too hagiographies of an imagined “West” are rapidly coming to an end.

### **“Liberating Mathematics from Civilizations”**

*Dr. George Gheverghese JOSEPH, University of Manchester*

Over the last three decades there has emerged increasing recognition of the role that mathematical exchanges across civilizations played in the growth of mathematical ideas. It is well recognized that since the Bronze Age about 5,000 years ago ideas have circulated across the Eurasian region between the agrarian civilizations that emerged in the river valleys of the Tigris-Euphrates, the Nile, the Indus, and the Hwang-Ho. Over time these exchanges became more intensive and extensive as the connections between these civilizations developed through empires, religions, and commerce. Although the global turn in the history of mathematics has led to many studies of mathematical connections between cultures there have been few studies of how the flow of mathematics over the region crucially shaped the growth of mathematics. By contrast most writers have focused on tunnel histories of mathematics which largely trace the development of ideas within civilizations in isolation from each other. Such tunnel histories do not allow us to see clearly those historical processes and epistemological reorientations brought about by such inter-civilizational fusions. This is what I will explore in this paper.

## **“The Physiology and Psychology of Vision in Ibn al-Haytham’s *Optics*”**

*Professor Nader EL-BIZRI, University of Sharjah, United Arab Emirates*

This talk focuses on the physiological and psychological aspects of visual perception (*al-baṣar*) as they are investigated in the *Book of Optics* (*Kitāb al-manāẓir*) of the tenth-century CE Arab polymath, al-Ḥasan Ibn al-Haytham (known in the European milieu by the Latinized rendering of his name as: “Alhazen”; born in ‘Abbāsīd/Būyīd Baṣra in 965 CE, and died in Fāṭimid Cairo in ca. 1040 CE). This line of inquiry will account for his anatomical analysis of the structure of the eyes, the optic nerves, and the frontal part of the brain, in addition to his detailed investigation of the interplay of mental activities and faculties (*takayyul*, *dhikr*, *tamyīz*, *qiyās*; imagination, memory, discernment, syllogistic-measure) in terms of contextualizing the objects of vision, while detecting, recognizing, and evaluating the meanings of their intended visible attributes (*al-ma‘ānī al-mubṣara*; *intentiones visibiles*). These manifold and interrelated aspects of his theory of vision will be situated moreover in the broader context of his geometrizing of the key notions of classical physics (*qua* natural philosophy), which structurally guided his experimental procedures of controlled testing in studying visual perception, and the associated optical effects of the comportment of physical light (*al-daw’*), as he also scrutinised them in dioptrics and catoptrics.

## **Day 2: Friday 24 March**

### **08:50-10:20 Panel 5: Natural Sciences in Dialogue**

#### **“Practical and “Precise” Geographic Knowledge of the World Developed in the Premodern Chinese and Islamic Worlds through Multi-Civilizational Connections and Contacts”**

*Professor Hyunhee PARK, City University of New York*

Since the 1959 publication of *SCC* Volume III, which includes novel discussions about Chinese geography and cartography, new studies have advanced the book’s original breakthroughs by mobilizing new methods and sources more extensively and in greater detail. For example, scholars heeding Harley’s call in the 1980s for a “humanistic turn” in cartography and geography shed light on unrecognized forms of cultural diversity across world societies. Such actions have committed us to new methods of geographical study that have made conspicuous lesser known but more practical and even more “accurate” forms of geographical knowledge than those found in well-studied European societies thanks to flourishing networks of cross-cultural interactions. Such is the case with premodern Asia. Many medieval European societies, isolated from Asian trade routes, depicted societies in the Eastern hemisphere as largely committed to mythological understandings of world geography less practical and accurate than their Western counterparts. New approaches, however, now demonstrate that geographers and cartographers in both Chinese and Islamic cultural worlds in fact enjoyed expansive and accurate views of the world at large, relying on more accurate and up-to-date literary and cartographical data accumulated through multi-civilizational connections and contacts. By developing new approaches that utilize greater information from abundant geographic and cartographic works developed in Chinese and Islamic worlds, as this paper suggests, we can re-evaluate the relative importance of practical knowledge in the development of geography in world history.

**“Certain Joseph Needham’s Views and Achievements  
in the History of Science and Technology in China  
李約瑟在中國科學技術史研究上的一些觀點與貢獻”**

*Professor Joseph Cheng-Yih CHEN, University of California San Diego*

Joseph Needham is a remarkable Western scholar who was able to approach his study of Chinese history of science and technology from a relatively neutral perspective, substantially free from the imposition of his own culture. He is admired for his scholarship efforts in covering as broad as possible and in going back, whenever possible, to the original sources. His wisdom and dedication have contributed much to our realization that science and technology is rooted in a multicultural tradition and is a product of global human endeavor. In the talk, I will draw certain of my own interactions with him both professionally and personally.

**“Connected Cartographies: A Jesuit 17<sup>th</sup> Century Manuscript Map of East Asia  
and its East Asian Sources”**

*Dr. Marco CABOARA, The Hong Kong University of Science & Technology*

The “Geographical description of the kingdoms of China, Korea and Japan” (*Descriptio geographica Sinici, Coraisi et Japonici regni*) – a Jesuit manuscript map of East Asia assembled in Macau at the time of the Imjin war and sent to Rome in 1593. The author will introduce and contextualize a manuscript map of China and East Asia held at the Jesuit archives in Rome, provisionally titled “*Descriptio geographica Sinici, Coraisi et Japonici regni*” (Geographical description of the kingdoms of China, Korea and Japan). The paper will argue that this map shows the first coherent image of East Asia as composed of China, Japan and Korea, as opposed to the Portolan chart model depicting the East Indies from Java to North Asia, an image resulting from the encounter between Korean, Japanese and Chinese maps and texts and Jesuit missionary cartographers and missionary strategy. Beside describing the map’s makeup and its transmission history (the original is lost, and we can only study its printed 1642 version and its 1651 manuscript copy), the paper will focus on the different sources of the map (Portuguese, Chinese, Korean, Japanese) and how they were gathered and modified according to the needs and abilities of the Jesuits based in China and Japan.

**10:40-12:40 Panel 6: Medical Traditions in Dialogue**

**“Dialogues Among Healers: Herbal Medicine in the Dutch East Indies  
during the 19<sup>th</sup> Century”**

*Professor Hans POLS, University of Sydney*

It is difficult to investigate the history of traditional herbal medicine in the Indonesian archipelago but it is mostly based on oral traditions and because of its diversity across the archipelago. Antony Reid has described the lands “below the winds” as centers of trade and cultural exchange since the late Middle Ages. Chinese, Arab, and, later, European traders (and, later, settlers) bought spices and acquired medical lore from locals and brought their own

products and insights about health and disease. These insights became interwoven with local medical lore. In this paper I will focus on the 19<sup>th</sup> century. At this time, Chinese settlement in the Dutch East Indies had grown significantly. Some Chinese healers (*sinses*) practiced traditional Chinese medicine without much modification, while others developed hybrid forms. Dutch physicians were losing their trust in European medicine after research from the Paris Medical School had led to the rejection of commonly accepted medical views and treatments. Some of them became eagerly interested in Indonesian traditional medicine. I will trace these exchanges by focusing on mediators and rare documentation. I will focus both on the exchange of ideas about the human body and its afflictions as well as on material exchange of prescriptions, herbs, and other substances.

### **“Rethinking Mutual Medical Influence between China and the West”**

*Professor Bridie ANDREWS, Bentley University*

Even though Joseph Needham thought of western and Chinese medicine as two rivers that had yet to converge, in this paper I will argue that they have more of a shared history than is often acknowledged. We can consider this history from several perspectives: from the history of concepts such as hot and cold, full and empty; from the history of techniques such as pulse-taking, bloodletting, cupping, use of drugs, and surgery; and the history of pathogens such as germs and demonic influences. Needham did not fail to notice these similarities: for him, however, they were specific to pre-modern medicine. Today, when some of the certainties of 20<sup>th</sup> century medicine are giving way to revaluations of past knowledge, it may be instructive to reconsider the relevance of some ‘medieval’ aspects of Eurasian medicine. In this way we may be able to reframe the ‘dialogical question’ in terms of a divergence and reconvergence of medical and healing traditions.

### **“In Search for the Right Point: Refashioning Acupuncture with Experiments and Standards”**

*Professor Wen-Hua KUO, National Yang Ming Chiao Tung University*

Following Joseph Needham’s long interest in acupuncture and recognition of the significance of acu-points in it, this paper looks at attempts to make acupuncture a standardized therapeutic for study and for clinical practice. A peculiar way of treating people via meridians inside their bodies punctuated by regulatory points, acupuncture has been used as a therapy for thousands of years, without losing popularity after the wide acceptance of bio-medicine in East Asia. Furthermore, its popularity increases outside of East Asia. Alongside institutional efforts to set standards for acupuncture in the past four decades, such as those made by the World Health Organization or the International Standard Organization, this paper focuses on the endeavor to lay a scientific foundation for acupuncture. Arguing against general acupuncture research trends that use animal models to seek physiological mechanisms of acupuncture or test its therapeutic effects with clinical conditions, this paper intends to be an update of Needham’s approach to acupuncture that treats it as both experience-based and clinically oriented. It is also in this light the career and work of Jaung-Geng Lin (林昭庚), the first physician of Chinese medicine elected as an academician at Academia Sinica (中央研究院院士), is introduced. Departing from a simple interpretation of Professor Lin’s personal diligent characters, this paper casts him and his achievement in a larger context that attempts to make

this non-biomedical tradition scientific with experiments and standards. It will show that while inheriting some Needhamian concepts, witting and unwittingly, what makes Professor Lin and his team an undeniable research enterprise relies on his professional training in the 1970s Taiwan, his insight as an active acupuncturist, and his networking to turn acupuncture an inviting field for scientific research and a respectable clinical specialty. Tracing and evaluating Professor Lin's research career, I argue, not only allows us to see the changing meaning of this living tradition as it is disputed among researchers and experts to make it comparable to biomedicine; it also offers an opportunity to capture its refashioning that, as Needham might have expected, push acupuncture toward an ecumenical medicine in the future.

### **“The Survival of Old Book Forms on the Peripheries”**

*Professor Imre GALAMBOS, University of Cambridge*

Until the series of large-scale manuscript discoveries of the 20<sup>th</sup> century, the history of the Chinese book has largely been based on transmitted sources. The newly excavated materials have provided first-hand evidence of pre-modern manuscript cultures and forced us to reconsider some earlier assumptions. Intriguingly, most of the discoveries happened along the peripheries of Sinitic cultural sphere, at sites along the Silk Road (e.g. Dunhuang, Turfan and Khara-khoto). Equally intriguing are the manuscripts that survive in other regions beyond the Sinitic cultural centre, including Japan, Korea and among so-called ethnic minorities. This talk argues that while some book forms have disappeared without a trace from the central areas of Sinitic culture, they survive – or may even continue to be used – along the peripheries. The survival of these book forms on the peripheries corroborates patterns of transmission known from areas of research, including linguistics and the history of science and technology.

## **14:00-16:00 Panel 7: Modes of Inquiry in Dialogue**

### **“Dialogue and Comparison Compared”**

*Professor H. Floris COHEN, Utrecht University*

Central to the organizers' invitation to the Forum is the difference between a 'dialogical' and a comparative approach to efforts at cross-cultural analysis of the history of science. I shall be comparing these two approaches with each other, and I shall do so in two ways. I shall first offer a brief reconstruction of Needham's own thought on the matter. Climbing on the shoulders of Needham and some other giants in hopes of looking farther, I shall then set forth how I conceive of the difference, and how I evaluate it.

### **“Explaining the Rise of Modern Science: A Dialogical Perspective”**

*Dr. Arun BALA, Independent Scholar, Singapore*

In a recent study *The Rise of Modern Science Explained: A Comparative History* the historian of science Floris Cohen argues that three modes of nature-knowledge – realist mathematical, kinetic corpuscular, and fact-finding experimental – combined to produce modern science. Cohen sees these as transformations of earlier traditions in ancient Greek thought and a

medieval Renaissance approach to the study of nature. In this paper I argue that, although the notion of such ‘modes of nature knowledge’ is very illuminating for understanding the origin and growth of modern science, their roots have to be traced beyond the European context in which he locates them. They are more illuminatingly seen as outcomes of three outside influences on Renaissance Europe – the flow of mechanical technologies from China, the computational techniques associated with the Indian number system, and the Arabic optics of Ibn al-Haytham. Although these influences on Renaissance Europe are widely appreciated their profound implications for modern science only become evident when we consider the ways in which they shaped the modes of natural-knowledge Cohen invokes to explain the rise of modern science. But this also requires us to go beyond the comparative approach within which he confines them toward a dialogical perspective linking them into the global context of Renaissance Europe.

### **“Mathematics in India: Some Conceptual Themes”**

*Professor Sundar SARUKKAI, Formerly, National Institute of Advanced Studies, India*

There are some striking differences between the conceptual foundations and discourse of mathematics in ancient and medieval India, and mathematics as practiced today. One such is the relation between mathematics and philosophy. Unlike Greek and European mathematics, the link between mathematics and philosophy was very tenuous in Indian thought, although there were a variety of Indian philosophical traditions in logic and language. This not only led to the absence of any well-established Platonism in Indian mathematics, but it also produced mathematical practice that was more pragmatic in character. Another difference that has been commented upon earlier is the axiomatic-algorithmic distinction. Is the emphasis on algorithmic character in Indian mathematics a consequence of its philosophical understanding of language and representation? In this paper, I want to explore whether these and other characteristics of Indian mathematics suggest alternate conceptual foundations for mathematics as such and whether such foundations persist in other forms in modern mathematics.

### **“From Unilinear Lineages to Indira Nets: How an East/West Encounter Offered a New Model of Knowledge Encounter and Exchange”**

*Professor Gordon McOUAT, University of King’s College / Dalhousie University*

Dominant centre-periphery models of knowledge encounter and distribution require stories of “origins”, “disseminations”, and unilinear paths. Therein lies “Needham’s Question”. However, in the early 20<sup>th</sup> century an alternative model, arising out of a deep encounter between Eastern and Western science, presented itself. Born in a robust dialogue between Western versions of “genetics” and Eastern ways in which the relationships between living beings can be conceived multidimensionally, a new “perspectival” model arose amongst biologists in the East in dialogue with geneticists of the West. For a brief period, a new “Dynamic System” offered a way out of the interminable disputes over a true unilinear “natural system”, while reworking the very meaning of “origins”, “genealogies”, “nature” and “inheritance”. This paper will explore the rise of the “dynamic system” in the trading zones between east and west, its spread across the West, and how it might offer up a new model of dialogue and exchange between knowledge systems.



## ***Background of Invited Speakers***

### **Professor Bridie ANDREWS, Bentley University**

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Bridie ANDREWS earned her BSc in Biological Sciences from the University of Edinburgh, studied Chinese at Xiamen University and Chinese medicine at 中国药科大学 in Nanjing. Her PhD was conducted at Cambridge University under the supervision of Dr. A.R. Cunningham. She has taught at SOAS, Harvard, and Bentley Universities. The author of a monograph, three co-edited volumes, and a book-length translation from German, she is currently completing an annotated translation of Chen Cunren 陈存仁 《银元时代生活史》 (*Life in the age of silver money*).

### **Dr. Arun BALA, Independent Scholar, Singapore**

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Arun BALA is a physicist and philosopher of science. He is the author of *The Dialogue of Civilizations in the Birth of Modern Science* and *Complementarity Beyond Physics: Niels Bohr's Parallels*, and edited *Asia, Europe and the Emergence of Modern Science*, and *The Bright Dark Ages: Comparative and Connective Perspectives*. He has held teaching and visiting appointments in the National University of Singapore as well as the University of Toronto, Western University, and Dalhousie University, Canada.

### **Dr. Marco CABOARA, The Hong Kong University of Science and Technology**

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Marco CABOARA is the Head of Special Collections at The Hong Kong University of Science and Technology Library and the author of the first comprehensive carto-bibliography of Western printed maps of China (1584-1735) (Brill, 2022). Growing up in Genova, where a short walk would bring you from the prison where Marco Polo wrote his *Milione* to the house of Christopher Columbus, Dr. Caboara has cultivated a lifelong interest in travel and especially in the relationship between Europe and China. Future plans include the continuation of the carto-bibliography into the nineteenth century and a companion volume dedicated to Chinese maps of China.

### **Professor Joseph Cheng-Yih CHEN, University of California San Diego**

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Joseph C.Y. CHEN is a physicist and a historian of ancient Chinese and multicultural traditions of science and technology, and their philosophical implications. He joined University of California at San Diego as Professor of Physics in 1966, and later also the faculty of the UCSD Program in Chinese Studies, teaching its first course on the history of Chinese science. Chen was invited in 1988 as Foundation Lecturer of the East Asian History of Science Foundation in Hong Kong, and to be on International Advisory Boards for history of Chinese and East Asian science conferences in China, Japan, South Korea, Singapore and

Germany. Chen edited *Science and Technology in Chinese Civilization* (World Scientific, Singapore, 1987), and authored *Early Chinese Work in Natural Science: A Re-examination of the Physics of Motion, Acoustics, Astronomy and Scientific Thoughts* (Hong Kong University Press, 1996).

**Professor H. Floris COHEN, Utrecht University**

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H. Floris COHEN is a Professor Emeritus in Comparative History of Science at Utrecht University. He investigated Needham's comparative approach and his own range of answers to 'the Needham Question' in ch. 6 of his *The Scientific Revolution. A Historiographical Inquiry* (University of Chicago Press, 1994; translated into Chinese by Dr. Zhang Butian). He summed up some of his principal conclusions in 'Joseph Needham's Grand Question, and How to Make It Productive for Our Understanding of the Scientific Revolution' (<https://doi.org/10.1484/M.DDA-EB.4.00573>). He has further set forth his own comparative conclusions in ch. 1 ('Greek Foundations, Chinese Contrasts') of his *How Modern Science Came into the World. Four Civilizations, One 17<sup>th</sup> Century Breakthrough*. Amsterdam UP, 2010; in particular, pages 33-52.

**Professor Prasenjit DUARA, Duke University**

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Prasenjit DUARA is the Oscar Tang Chair of East Asian Studies at Duke University. He was Professor and chairman of History at University of Chicago (1991-2008) and Raffles Professor and Director of Asia Research Institute at the National University of Singapore (2008-2015). He was the President of the American Association for Asian Studies (2019-20). His books include *Culture, Power and the State: Rural North China, 1900-1942* (Stanford Univ Press) winner of Fairbank Prize of the AHA and Levenson Prize of the AAS, USA, *Rescuing History from the Nation* (U Chicago 1995), *Sovereignty and Authenticity: Manchukuo and the East Asian Modern* (Rowman 2003) and *The Crisis of Global Modernity: Asian Traditions and a Sustainable Future* (Cambridge 2014). He was awarded the *doctor philosophiae honoris causa* from the University of Oslo in 2017.

**Professor Nader EL-BIZRI, University of Sharjah**

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Nader EL-BIZRI is the Dean of the College of Arts, Humanities, and Social Sciences at the University of Sharjah. He was previously a Professor of Civilization Studies & Philosophy at the American University of Beirut, and also served there as an Associate Dean of the Faculty of Arts & Sciences and as the Director of the university-wide General Education in the liberal arts. He has been recently a Leverhulme Visiting Professor of History at Durham University, and he is currently an Affiliated Scholar of History & Philosophy of Science at the University of Cambridge, and a King's College Associate of the Senior Combination Room. He specializes in Arabic Sciences & Philosophy, Architectural Humanities, and Phenomenology, and serves on international academic boards, in addition to his General Editorship of the

Oxford University Press Epistles of the Brethren of Purity series. He received various awards, including the Prize of the Kuwait Foundation for the Advancement of Sciences, and the Mellon Fellowship in the Liberal Arts at Claremont College.

**Professor Roger HART, Texas Southern University**

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Roger HART is a leading scholar of science and technology in contemporary (twenty-first century) China. His current research focus is the Second Quantum Revolution (namely quantum communication, quantum computing, and quantum sensing), and especially the quantum internet, an area in which China has recently surpassed the U.S. He is Professor of Chinese history and Director of the China Institute at Texas Southern University. His previous appointments include the Wilson Center, Seoul National University, University of Texas at Austin, University of Chicago, Institute for Advanced Study, Stanford University, University of California at Berkeley, and Harvard University. His previous awards include Fulbright U.S. Scholar, American Council of Learned Societies, National Endowment for the Humanities, and Andrew W. Mellon Postdoctoral Fellowship in the Humanities. His publications include two research monographs, *The Chinese Roots of Linear Algebra* (Johns Hopkins University Press, 2011) and *Imagined Civilizations: China, the West, and Their First Encounter* (Johns Hopkins University Press, 2013). He earned his B.S. in mathematics from MIT and M.S. in mathematics from Stanford, and his Ph.D. in Chinese history and history of science from UCLA. He has lived in China for six years; his modern Chinese is near-native and his classical Chinese is excellent. He has spent the last three years studying the newly emerging field of quantum information science. His website is [www.rhart.org](http://www.rhart.org).

**Professor Ryuji HIRAOKA, Kyoto University**

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Ryuji HIRAOKA is an Associate Professor at the Institute for Research in Humanities (Zinbunken), Kyoto University, Japan. He has published on history of science in East Asia and Euro-Asian cultural exchange during the early modern period, including *Jesuits and Western Clock in Japan's 'Christian Century'* (2020), *Printed Editions and Manuscripts of Tianjing huowen* (2019), and *Textual Studies in Early Jesuit Cosmology in Japan* (in Japanese. Hana-shoin publishing, 2013).

**Professor Imre GALAMBOS, University of Cambridge**

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Imre GALAMBOS is a specialist of medieval Chinese manuscripts, focusing on material excavated at sites along the Silk Road. He received his PhD from the University of California at Berkeley in 2002, where he wrote a dissertation on the structure of Chinese characters during the Warring States period. Upon graduation, he worked for ten years for the International Dunhuang Project (IDP) at the British Library, where his research interests turned to the medieval period. In 2012, he took on a teaching post at the University of Cambridge, where he is now Professor of Chinese. His books include *Orthography of Early*

*Chinese Writing* (2006), *Manuscripts and Travellers: The Sino-Tibetan Documents of a Tenth-century Buddhist Pilgrim* (2012), *Translating Chinese Tradition and Teaching Tangut Culture* (2015), and *Dunhuang Manuscript Culture: End of the First Millennium* (2020). His newest project is the spread of texts across languages and cultures, as seen in manuscripts from sites along the Silk Road.

**Dr. George Gheverghese JOSEPH, University of Manchester**  
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George Gheverghese JOSEPH is a mathematician and historian of mathematics. Born in Kerala, he grew up in Kenya, and completed his degrees in England. He has held university appointments across the world, including East and Central Africa, India, Papua New Guinea, New Zealand and South East Asia. He has authored many books including *The Crest of the Peacock: Non-European Roots of Mathematics*, *A Passage to Infinity: Medieval Indian Mathematics from Kerala and Its Impact*, and *Indian Mathematics: Engaging with the World from Ancient to Modern Times*. He was also Editor of *International Seminar and Colloquium on 1500 Years of Aryabhateeyam* and *Knowledge and Cultures: Crossing Boundaries in History*.

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Tung-Yi KHO is a Research Fellow at the Centre of Cultural Research and Development at Lingnan University, Hong Kong. He is also a research consultant for Sports Management Group in Thailand, investigating the socio-cultural aspects of sports and physical training. He has PhDs in Social Anthropology from SOAS, London in 2019 and in Cultural Studies from Lingnan University, Hong Kong in 2014. Before this, he trained in Economics, Political Economy, and Sociology in Australia and the U.S. His research interests are multidisciplinary, including globalization, colonialism and decoloniality, the sociology of sports and physical training, Chinese medicine and philosophy, and Chinese modernity.

**Professor Wen-Hua KUO, National Yang-Ming Chiao Tung University**  
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Wen-Hua KUO is a Professor at National Yang Ming Chiao Tung University, Taiwan, where he teaches social studies of medicine. His work revolves around pharmaceutical regulation and its social impacts in the East Asian context, and controversies in East Asian medicines' attempt to be modernized and used globally. His scholarly publications appear in a range of journals crossing several disciplines, including the *Journal of Law, Medicine, and Ethics*, *Drug Information Journal*, *Social Science & Medicine*, *Science, Technology and Society* and *Isis*. Considering Chinese medicine in globalization, his publication includes a book chapter on global health titled *You've got the point? Acupuncture and the techno-politics of bodyscape* (in *Global health and the new world order: Historical and anthropological approaches to a changing regime of governance*, Manchester University Press 2021) and a paper on Needham and acupuncture, titled *An Ecumenical Medicine Yet to Come: Reflections on Needham on*

*Medicine* (Isis (2019) 110 (1): 116-121). In addition to his current research on the changing of care and caring professions, he served as the editor-in-chief of *East Asian Science, Technology and Society: An International Journal (EASTS)*, one of the few journals serving as a bridge between STS studies done in and about this region, from 2016 to 2022.

**Professor Raymond W. K. LAU, Hong Kong Metropolitan University**  
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Raymond W. K. LAU is a sociologist by training, focusing mainly on theoretical issues. Since the late 2000s, his research interests have diversified into ancient Chinese thoughts and comparative intellectual developments, and have since published original research on the philosophies of Xunzi (2013), Laozi (2015) and Zhuangzi (2019 and 2021), as well as a monograph titled *Intellectual Developments in Greece and China: Contingency, Institutionalization and Path-Dependency* (2020), in which he analyzed the reasons why intellectual developments in the two civilizations followed different trajectories from the perspective of a specially-designed theoretical framework. He retired as full professor of sociology from the Open University of Hong Kong (now renamed as the Metropolitan University of Hong Kong) in August 2017, and now serving as a Visiting Senior Research Fellow at the Hong Kong Shue Yan University as well as senior advisor to The Joseph Needham Foundation for Science and Civilization (Hong Kong).

**Professor Keekok LEE, University of Manchester**  
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Keekok LEE is a philosopher trained in the analytical tradition of “Anglo-Saxon philosophy”. She taught at the National University of Singapore before moving to the University of Manchester, UK. Since taking early retirement in 1999, she has continued to research and publish in several philosophical domains, including the Philosophy of Biology/Genetics and the Philosophy of Medicine. The latter domain has investigated both Biomedicine and Classical Chinese Medicine. Of late, she has also been pre-occupied with the notion of Coloniality, both Exogenous and Endogenous with regard to non-European systems of knowledges. For details, see [www.keekoklee.org](http://www.keekoklee.org).

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Jongtae LIM earned his PhD at Seoul National University in 2003, with his dissertation titled *Chinese and Korean Scholars' Understanding of the Jesuits' Geographical Knowledge in the 17<sup>th</sup> and 18<sup>th</sup> Centuries*. Since 2006, he has been teaching the history of science in Korea in the Department of Science Studies at Seoul National University. His research interests cover topics in the history of early modern Korean science, such as Western learning, Sino-Korean scientific exchanges, and science in the state bureaucracy.

**Dr. Bill M. MAK, Needham Research Institute / The ISF Academy**

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Bill M. MAK is currently a Research Associate at the Needham Research Institute and Fellow of the Jao Tsung-I Petit Ecole, University of Hong Kong. His areas of research include history of science in Asia, historical Sino-Indian cultural contact, and Buddhist philology. He is the author of over 30 academic articles in peer-reviewed journals and co-editor of *Overlapping Cosmologies in Asia*, recently published by Brill. He is now completing a book project titled *Foreign Astral Sciences in China, from Six Dynasties to Northern Song*, to be published by Routledge under the Needham Research Institute Monograph Series.

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Gordon McOUAT is Professor and Founding Director of the History of Science and Technology Program at the University of King's College/Dalhousie University and is the Director of the international collaboration project, "Cosmopolitanism and the Local in Nature and Science, East and West". His research focuses on the history and philosophy of logic, classification, and the origins of "natural kinds", including works on "Bentham's Logic", "The Origins of Natural Kinds", "Cataloguing Power", and "Species, Rules and Meaning". Recently, his research has turned to the study of the situatedness of knowledge and the international circulation of cosmopolitan science, coediting *Circulation of Knowledge between England, India and China* (Brill 2013), *Narratives of Nature and Science, East and West* (Routledge, 2015), and *Spaces of Enlightenment Science* (Brill, 2021).

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Hyunhee PARK (PhD Yale University) is Professor of History at John Jay College and the Graduate Center of the City University of New York. She specializes in the history of cross-cultural contacts in East Asia and the Islamic World, in Sino-Islamic contacts in particular, in the Mongol Empire, and global history, focusing on information/knowledge transfers, including transfers of geographical knowledge, foodways, and distillation technologies. She authored *Mapping the Chinese and Islamic Worlds: Cross-Cultural Exchange in Pre-Modern Asia* (2012), *Soju: A Global History* (2021), and 30 articles for academic journals and edited volumes.

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Hans POLS FAHA FRSN is Professor at the School of History and Philosophy of Science at the University of Sydney. He is interested in the history of medicine in Southeast Asia, in particular, the indigenous medical traditions, mental health care, and the social and political engagement of physicians and traditional healers. His most recent book, *Nurturing Indonesia: Medicine and Decolonisation in the Dutch East Indies* (Cambridge University Press, 2018)

focuses on the interrelationship of medicine and Indonesian nationalism during the first part of the 20<sup>th</sup> century.

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George SALIBA, is the Founding Director of the Farouk Jabre Center for Arabic-Islamic Science and Philosophy, American University of Beirut, and Professor Emeritus of Arabic and Islamic Science, Columbia University in New York. He has occupied, among others, the positions of Distinguished Senior Scholar at the Kluge Center of the Library of Congress (2005-2006) and a Carnegie Scholar (2009-2010). He has also been the O. Neugebauer Fellow at the Institute for Advanced Study, Princeton, 1988-1989. Professor Saliba has been internationally recognized and received many awards. Amongst them is the Kuwait Foundation for the Advancement of Science Prize, 1996, and the History of Science Prize: Third World Academy of Science, 1993. He has already given more than 150 talks at academic venues on four continents. Professor SALIBA is also the author and/or co-author of more than thirteen books and some 200 articles in international academic journals. Amongst them is his *Islamic Science and the Making of the European Renaissance*, MIT Press (2007), *A History of Arabic Astronomy: Planetary Theories During the Golden Age of Islam* (NYU Press 1995), *Rethinking the Roots of Modern Science: Arabic Manuscripts in European Libraries*, Occasional Paper, CCAS, Washington DC, 1999, the *Astronomical Work of Mu'ayyad al-Dīn al-'Urḍī* (d. 1266, Beirut, 3rd. ed. 2001), and more recently his *Features of Originality and Creativity in the Late Scientific Commentaries*, (Arabic) Furqan, 2015.

**Professor Sundar SARUKKAI, Formerly, National Institute of Advanced Studies India**  
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Sundar SARUKKAI works primarily in the philosophy of the natural and the social sciences. He is the founder of Barefoot Philosophers (<https://www.barefootphilosophers.com/>). He was a Visiting Faculty at the Centre for Society and Policy, Indian Institute of Science, Bangalore. He was Professor of philosophy at the National Institute of Advanced Studies until 2019 and was also the Founder-Director of the Manipal Centre for Philosophy and Humanities. He is the author of *Translating the World: Science and Language*, *Philosophy of Symmetry*, *Indian Philosophy and Philosophy of Science*, *What is Science?*, *JRD Tata and the Ethics of Philanthropy*, *Philosophy for Children: Thinking, Reading and Writing* and two books co-authored with Gopal Guru – *The Cracked Mirror: An Indian Debate on Experience and Theory* and *Experience, Caste and the Everyday Social*. His new book *The Social Life of Democracy* will be published by Seagull in 2023. He is the Series Editor of Routledge's *Science and Technology Studies* as well as the Co-Chief Editor of the *Springer Handbook on Logical Thought in India* (2022).



**Professor John STEELE, Brown University**

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John STEELE is Professor of the History of the Exact Sciences in Antiquity at Brown University. His research focusses on the history of Babylonian astronomy and astrology, the circulation of scientific knowledge, and the reception of ancient science in the early modern period.



The Joseph Needham Foundation for Science & Civilisation (Hong Kong)

李約瑟科技與文明基金會

and

Needham Research Institute (Cambridge)

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*Present*

## **The 13<sup>th</sup> Joseph Needham Memorial Lecture Series**

Hong Kong Palace Museum

25 March 2023

# The 13<sup>th</sup> Joseph Needham Memorial Lecture Series

25 March 2023 (Saturday)

Hong Kong Palace Museum  
West Kowloon Cultural District, 8 Museum Drive  
Kowloon, Hong Kong

## *Memorial Lecture Series Program*

**09:00-09:30    Opening Remarks: Tributes to Dr. Joseph Needham**

**Dr. Peter L. LEE, Chairman, JNFSC**

**Professor Martin K. JONES, Chairman, NRI**

**Dr. Louis NG, Director, Hong Kong Palace Museum**

**09:30-11:00    Memorial Speakers**

**Professor LEE Chack Fan**, Director of the HKU – Jao Tsung-I Petite Ecole

*Title: The Process of Learning and Surpassing in the Advancement of Science and Civilizations*

**Professor Imre GALAMBOS**, East Asian Studies, University of Cambridge

*“Technologies of the Book in Dunhuang during the 9<sup>th</sup> and 10<sup>th</sup> Centuries”*

**Professor John STEELE**, Brown University

*“Babylonian and Chinese Astronomy: Comparison, Circulation, and Dialogue”*

**11:00-11:15    Tea & Coffee Break**

**11:15-12:45    Public Forum with Invited Speakers**

**Professor LEE Chack Fan**, Director of the HKU – Jao Tsung-I Petite Ecole

**Professor MEI Jianjun**, Director, Needham Research Institute

**Dr. Bill MAK**, Research Associate, Needham Research Institute / Director of Chinese Research Center, The ISF Academy

**Dr. Arun BALA**, Conference Chair

**12:45-13:00    Concluding Remarks and Closing Ceremony**

# **The Process of Learning and Surpassing in the Advancement of Science and Civilization**

By

**Professor LEE Chack Fan**

*Director of the Jao Tsung-I Petite Ecole, The University of Hong Kong*

## **Abstract**

Many Greek scholars studied and lived in ancient Egypt, prior to the rise of the Hellenic civilization to prominence. Medieval Muslims studied Greek classics and science at the Bayt al Hikma (House of Wisdom) in Baghdad, adding the much-needed pioneering experimental work to the Greek theoretical studies. A significant factor in the European Renaissance is the learning of Greek classics and Islamic scientific achievements. The Greeks learned from the ancient Egyptians and surpassed them; as did the medieval Muslims with the Greeks. Europeans learned from the Islamic scientists and surpassed them over the past several centuries. The lecture will review this process of learning from predecessors and surpassing them subsequently, and its significance in the advancement of science and human civilization.

## **Biography**

Professor LEE Chack Fan is presently the Director of the Jao Tsung-I Petite Ecole, at the University of Hong Kong. He was a former Pro-Vice-Chancellor and Chair Professor of Geotechnical Engineering, of that university. He is an academician of the Chinese Academy of Engineering, a Fellow of the Canadian Academy of Engineering, a Fellow and past president of the Hong Kong Academy of Engineering Science. He has published over 300 scholarly papers, along with 20 books on humanities and engineering science. He was a former Fulbright Distinguished Scholar, and a recipient of five honorary doctorates in science from local and overseas universities.

# **Technologies of the Book in Dunhuang during the 9<sup>th</sup> and 10<sup>th</sup> Centuries**

By

**Professor Imre GALAMBOS**

*Professor of Chinese, East Asian Studies, University of Cambridge*

## **Abstract**

The overall majority of the tens of thousands of manuscripts discovered in the Dunhuang library cave date from the 9<sup>th</sup> and 10<sup>th</sup> centuries, that is, from a two-hundred-year period prior to the sealing of the cave in the early 11<sup>th</sup> century. During this period, Dunhuang was under Tibetan control and, from 848 onward, functioned as a *de facto* independent kingdom known as the Guiyijun (Return to Allegiance Circuit). Looking at the manuscript evidence, one of the conspicuous aspects of this period is the appearance of entirely new book forms, which were not in circulation earlier when the region was under Tang control. The three new book forms are the pothi, the concertina and the codex, all of which comprise flat volumes with individual pages, in sharp contrast to the traditional scroll form and its continuous writing surface. The appearance of the three new book forms at a time when Dunhuang was cut off from Central China but maintained close ties with Tibet and Central Asia is certainly no coincidence, and we have to interpret the influx of new book forms as a result of interactions with non-Chinese cultures. In this talk, Professor GALAMBOS will present the surviving material evidence for such interactions and demonstrate the lasting impact of these book forms not only in the Gansu Corridor but far beyond. Among the core arguments of the talk is that Tibet and Central Asia have been a major source of creative inspiration for the development of book technology in China and the rest of East Asia.

## **Biography**

See Professor GALAMBOS' bio above in this booklet.

# **Babylonian and Chinese Astronomy: Comparison, Circulation, and Dialogue**

By

**Professor John STEELE**

*Professor of the History of the Exact Sciences in Antiquity, Brown University*

## **Abstract**

Babylonia and China developed two of the earliest and longest traditions of astronomy and astrology. Babylonian astronomy, which flourished from ca. 750 BCE to c. 100 CE, included a diverse range of practices including the development of a systematic program of astronomical observation and record keeping, the identification of lunar and planetary periods and their use in making astronomical predictions, the construction of systems of mathematical or theoretical astronomy, and various types of astrology. Similarly, in early China, extensive traditions of observational and mathematical astronomy as well as astrology developed. Aspects of Babylonia and Chinese astronomy circulated to neighboring cultures and, it has sometimes been claimed, direct exchange of astronomical knowledge even took place between Babylonia and China. In this lecture, Professor STEELE will compare and contrast several aspects of Babylonian and Chinese astronomy in order to better understand their similarities and differences, and the possible links between these two astronomical traditions.

## **Biography**

See Professor STEELE's bio above in this booklet.

## ***The Science and Civilization in China Series***

In 1948 Joseph Needham approached the Cambridge University Press to publish a one-volume book that he was writing, titled *Science and Civilisation in China*, aimed at all educated people, whether scientifically trained or not, who were interested in the comparative history of civilization, especially the comparative development of Asia and Europe.

One volume became seven, as more and more research became available and interest in the subject grew. The first introductory volume appeared in 1954. By now, about two-thirds of the thirty or so volumes or sub-volumes envisioned by Needham in his lifetime have appeared.

At this time, there are 25 published volumes in the *SCC* series. We have the whole or part of the introductory orientations, history of scientific thought, mathematics and the sciences of the heavens and the earth, physics and physical technology, mechanical engineering, engineering and nautics, paper and printing, alchemy and chemistry, military technology, textile technology, agriculture, agro-industries, forestry, mining, botany, biotechnical technology, language and logic in traditional China. Volumes on non-ferrous metallurgy, the salt industry, and loom (textile weaving machine) are forthcoming.

There are still a number of subjects that require much work before they are ready to be published and thus complete the project.

Following the passing of Dr. Needham in 1995, the planning and publication of new volumes to the *Science and Civilisation in China* series, has rested with the Publications Board of the Needham Research Institute in Cambridge.



**The East Asian History of Science Trust, U.K.  
(subsequently renamed the Needham Research Institute)**

The East Asian History of Science Trust (subsequently renamed the Needham Research Institute) was set up in England in the 1960s to fund Joseph Needham's *Science and Civilisation in China*, and it continues to support the project and the work of the Needham Research Institute. In 1978, several of Joseph Needham's close friends and supporters in the United States led by the late Dr. Clifford Shillinglaw and Dr. Philip Talbot set up the East Asian History of Science Board, Inc. They worked tirelessly to secure funds from major corporations and non-profit foundations including the Ford Foundation, Carnegie Foundation, Henry Luce Foundation, Kresge Foundation, among others. Apart from the Kresge Foundation matching gift for the construction of the permanent Needham Library, the bulk of the contributions were for the smooth running of the Library. With the major objectives largely achieved over the years, the East Asian History of Science Foundation USA, after consultations with the Needham Research Institute in Cambridge, decided to disband in 2008.

A Hong Kong branch of the East Asian History of Science Trust was established in 1979. It was re-registered as the East Asian History of Science Foundation in 1981 and officially inaugurated by Dr. Joseph Needham in Hong Kong on 14 October, 1981. The Board also used this occasion to launch a series of fund-raising activities for building a permanent library and the endowment of the Needham Research Institute. Between 1982 and 1988, the East Asian History of Science Foundation in Hong Kong was instrumental in raising most of the funds for the construction of both the main library building and the south wing addition of the Institute in Cambridge.

Although the fund-raising activities had focused mainly on the building of the library facilities and the endowment of the Institute, the Foundation has also been active in organizing lectures in Hong Kong to promote public interest in the history of Chinese science and technology. Travel grants have also been provided to scholars from China and Hong Kong to the Needham Research Institute. In 1995, EAHSF(HK) awarded a graduate fellowship to Mr. Mei Jianjun of China to attend Cambridge University, where he successfully completed his PhD in Archaeology in 1999. Dr. Mei has been the NRI Director since January 2014.

## **The Needham Research Institute**

The Needham Research Institute is devoted to the study of the history of science in East Asia. It houses the Institute's library, a unique resource for an international community of scholars, designed to provide an environment highly favorable to research and scholarly writing.

The Institute is situated on the grounds of Robinson College, Cambridge. It is the home of the *Science and Civilisation in China* project. Researchers from all over the world with an interest in the history of science, medicine and technology in East Asia are welcome to visit the Institute.

The Institute and its library offer scholars facilities for research and writing unrivalled by any other academic institution in its field. No other collection of its kind exists in the western world, and the only parallel is the Library of the Institute of the History of Natural Science, at the Chinese Academy of Sciences in Beijing.

The aim of the Institute and its East Asian History of Science Library is to enable specialists to pursue active research programs in the history of medicine, science and technology in East Asia, particularly China. Not only will the Library provide a center for visiting scholars, it will also undertake to sponsor suitable researches with grant-giving bodies.

Joseph Needham's vision for the Institute was that it should retain its autonomy but also have strong links with the University of Cambridge. This remains the vision of the Needham Research Institute today.

Professor Mei Jianjun has been the NRI Director since January 2014 following the retirement of Professor Christopher Cullen, who succeeded Professor Ho Peng Yoke in December 2002.

Professor Ho passed away in 2014. His long years of association with Dr. Needham in the *SCC* series will always be treasured and remembered. In November 2018, on the basis of generous donations from Professor Ho's family and friends, the NRI established 'The Ho Peng Yoke Fellowship in the History of Science and Technology in China' to commemorate Professor Ho's remarkable contributions.

**The Joseph Needham Foundation for Science & Civilisation Hong Kong**  
**李約瑟科技與文明基金會**

**(Formerly the East Asian History of Science Foundation Hong Kong)**  
**(東亞科學歷史基金會)**

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**The Needham Research Institute, U.K.**  
**(formerly The East Asian History of Science Trust, U.K.)**

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Dr. Imre Galambos	Professor Roel Sterckx FBA
Mr. Charles Harpum	Mr. Michael Womack
Dr. Christopher Hughes	Ms. Elizabeth Wright

## **Background of the Joseph Needham Memorial Lectureship**

The Board of Directors of the EAHSF in Hong Kong agreed in 1982 to the establishment of a public lectureship in Hong Kong to provide a forum for international scholars specialized in the history of science, technology and medicine in China and / or East Asia. In this respect, many benefactors from Hong Kong can appreciate that funds raised here not only support the Needham Research Institute projects, but also generate public interest in Dr. Needham's work on a broader basis.

- 1983 Dr. Joseph Needham presented the first lecture, entitled "*Gunpowder as the Fourth Power, East and West*"
- 1984 Professor Nathan Sivan of the University of Pennsylvania, USA
- 1986 Professor Shigeru Nakayama of Tokyo University, Japan
- 1987 Professor Ke Jun of the University of Science and Technology, Beijing, China
- 1988 Professor Joseph C. Y. Chen of the University of California, San Diego, USA

**In tribute to the late Joseph Needham who passed away in March 1995, the EASHF (HK) renamed the East Asian History of Science Lectureship the Joseph Needham Memorial Lectureship.**

- 1995 Professor Wang Gungwu, Vice-Chancellor of the University of Hong Kong
- 1999 Professor Ho Peng Yoke, Director of the Needham Research Institute, Cambridge, United Kingdom
- 2001 Professor Lu Yongxiang, President, the Chinese Academy of Science, China
- 2003 Dr. Huang Hsing-Tsung, Former Deputy Director, The Needham Research Institute, Cambridge, United Kingdom
- 2006 Dr. Robert B. Oxnam, President, The Needham Research Institute, USA
- 2007 Mr. James C. Y. Watt, Brooks Russell Astor Chairman, Department of Asian Art, Metropolitan Museum of Art, New York, USA
- 2008 Professor Roel Sterckx, Joseph Needham Professor of Chinese History, Science and Civilisation, Chair, Department of East Asian Studies, University of Cambridge, Cambridge, United Kingdom
- 2013 Professor Mei Jianjun, Director-Designate of the Needham Research Institute, Cambridge, England, and Director of the Institute of Historical Metallurgy and Materials, University of Science and Technology Beijing, China
- 2014 Professor Francesca Bray, Professor of Social Anthropology, University of Edinburgh, Scotland, UK, and Visiting Professor, Hong Kong Institute for the Humanities and Social Sciences, The University of Hong Kong, Hong Kong
- 2015 Professor Christian Daniels, Professor of Humanities, The Hong Kong University of Science and Technology, Hong Kong
- 2017 Professor Vivian Taam Wong JP, Honorary Professor, The LKS Faculty of Medicine, The University of Hong Kong, Hong Kong
- 2018 Professor Martin Jones, George-Pitt Rivers Professor of Archaeological Science, University of Cambridge and Needham Research Institute, United Kingdom

**The Joseph Needham Professorship  
of Chinese History, Science and Civilization**  
(at The University of Cambridge, UK)

In further tribute to Dr. Needham, in 2008 the East Asian History of Science Foundation Hong Kong supported the endowment of a permanent Chair in Chinese History at the University of Cambridge. Professor Roel Sterckx, Chair of the Department of East Asian Studies at Cambridge and one of the leading experts on pre-modern China, is the first scholar to be appointed to the Chair. His contributions to the history of Chinese science include work on Chinese zoology, medical illustration, and natural environments. Professor Sterckx very kindly accepted our invitation and delivered the 7<sup>th</sup> Joseph Needham Memorial Lecture later that same year, speaking on “*Naturalist Illustration in Traditional China*”.

**The Joseph Needham-Philip Mao Professorship  
in Chinese History, Science and Civilization**  
(at The University of Hong Kong, Hong Kong)

Subsequent to the establishment of the endowed professorship at Cambridge, The East Asian History of Science Foundation Hong Kong supported the endowment of the Joseph Needham–Philip Mao Professorship of Chinese History, Science and Civilisation at the University of Hong Kong, honoring both Dr. Needham and its founding chairman, the late Dr. Philip W.C. Mao. The Chair Professorship was inaugurated in 2012 and the first scholar appointed to this Professorship is Professor Angela Ki-che Leung, Chair Professor of History, Hong Kong Institute for the Humanities and Social Sciences, The University of Hong Kong. Professor Leung’s research focus is on diseases and medical culture in South China, in particular the Canton/Hong Kong region, in the global and colonial context in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. Her broader interests are on the history of science, medicine and technology in pre-modern and modern East Asia.

**The Joseph Needham Merit Scholarship Program**

The Joseph Needham Merit Scholarship Program (JNMS) was first launched in 2020 to nurture a community of future “Needham Scholars” excelling in scholarship and embracing empathy and humanity. These students have been selected following careful assessment by a panel of distinguished scholars appointed by the JNFSC. Since the launch, a total of 25 students from HKU, CUHK, and HKUST have been awarded this scholarship over the past 3 years. The program has been a long-term mission of the JNFSC to promote and sustain the late Dr. Needham’s scholarly legacy through this unique “Merit Scholarship” and to reach out to local tertiary institutions in the years to come.

Joseph Needham Foundation for Science & Civilisation,  
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## Acknowledgements

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Bei Shan Tang Foundation



饒學研究基金



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Hong Kong Palace Museum in West Kowloon for providing venue assistance to the Joseph Needham Memorial Lecture Series



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