

## 西方宇宙論的傳入及東亞知識分子的反應

The Introduction of Western Cosmology and the Invention of Earth's rotation in East Asia

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本論文通過考察 17 至 19 世紀中·朝兩國數位儒學家所留下的文獻，闡明他們提出「地轉說」的具體思想脈絡與構想過程。

自 17 世紀初西方同心天球說傳入東亞以來，其理論中有兩點給本土儒學家帶來了巨大的思想衝擊：其一是天體為堅硬固體的觀念，其二是宇宙規模遠超想像的龐大。

對於固體天球說，東亞知識分子依據自身傳統的「氣」的宇宙論，大多予以批判和拒斥。但對於宇宙的龐大規模，他們則將其作為一個新的現象性事實加以接納。然而，正是對這一新事實的接納，讓他們開始質疑天體每日旋轉一周的合理性——因為在一個如此龐大的宇宙中，這意味著天體的旋轉速度將是不可思議的。

為了化解這一矛盾，中國與朝鮮的一些儒學家最終提出了以「地球旋轉」取代「天體旋轉」的解決方案。本文所探討的代表人物，包括中國的黃道周（1585-1646），以及朝鮮的李瀾（1681-1763）、金錫文（1658-1731）、洪大容（1731-1783）與丁若銓（1758-1816）等人。

This paper examines the materials left behind by several Confucian scholars in China and Joseon from the 17th to 19th centuries who proposed the idea of Earth's rotation. It aims to clarify the process of thought through which they arrived at this concept.

From the early 17th century, the Western cosmological model of concentric celestial spheres, introduced into East Asia by Jesuits, became widely known to Confucian intellectuals in China and Joseon. Within this cosmological

framework, two notions in particular were perceived as shocking to East Asian Confucian scholars: one was the argument that the celestial sphere was a solid and rigid structure; the other was that the celestial sphere was unimaginably vast in scale.

Confucian intellectuals in East Asia, grounded in the cosmology of qi (氣), criticized and rejected the first argument. However, they accepted the second—that the universe was enormously vast—as an astronomical fact. Yet, once they accepted the vast scale of the universe, doubts arose about the Western theory of celestial motion, which claimed that the entire heavenly spheres rotate once every day. The speed required for such rotation was deemed incomprehensible.

As a result, several Confucian scholars in China and Joseon proposed the idea of “Earth’s rotation” as an alternative to “heaven’s rotation.” Key figures who contributed to this idea included Huang Daozhou (黃道周, 1585-1646) in China, and Yi Ik (李瀼, 1681-1763), Kim Seok-mun (金錫文, 1658-1731), Hong Dae-yong (洪大容, 1731-1783), and Jeong Yak-jeon (丁若銓, 1758-1816) in Joseon.

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