

Hong Kong Science Museum's "The Shaw Prize 2024 Exhibition" showcases laureates' achievements in scientific research (with photos)

The Hong Kong Science Museum will launch "The Shaw Prize 2024 Exhibition" tomorrow (November 8) at the museum's main lobby on 1/F, to introduce the Shaw Laureates this year and their outstanding contributions. The exhibition also presents basic science knowledge in the laureates' respective academic fields with interactive panels, enabling visitors to understand more about the major efforts and achievements in scientific research by top-notch scientists worldwide. The exhibition will run until January 8 next year, and admission is free.

Established in 2002, the Shaw Prize consists of three annual awards, namely the Prize in Astronomy, the Prize in Life Science and Medicine and the Prize in Mathematical Sciences. The Shaw Prize laureate in Astronomy 2024 is George Ellery Hale Professor of Astronomy and Planetary Science, Division of Physics, Mathematics and Astronomy at the California Institute of Technology, the United States (US), Professor Shrinivas R Kulkarni. He is awarded the Shaw Prize for his groundbreaking discoveries about millisecond pulsars, gamma-ray bursts, supernovae and other variable or transient astronomical objects.

The Shaw Prize in Life Science and Medicine 2024 is awarded in equal shares to two scholars, Senior Investigator and Chief of the Sickle Cell Branch, National Heart, Lung, and Blood Institute at the National Institutes of Health, the US, Ms Swee Lay Thein, and David G Nathan Distinguished Professor of Pediatrics at Harvard Medical School, the US, Professor Stuart Orkin. They discovered the genetic and molecular mechanisms underlying the fetal-to-adult hemoglobin switch, making possible a revolutionary and highly effective genome-editing therapy for sickle cell anemia and β thalassemia, which are devastating blood diseases that affect millions of people worldwide.

The Shaw Prize in Mathematical Sciences 2024 is awarded to Eugene Higgins Professor of Mathematics, Princeton University and Professor Emeritus, School of Mathematics, Institute for Advanced Study, Princeton, the US, Professor Peter Sarnak, for his development of the arithmetic theory of thin groups and the affine sieve, by bringing together number theory, analysis, combinatorics, dynamics, geometry and spectral theory.

The Shaw Prize 2024 laureates will gather at the Roundtable with Shaw Laureates on November 14 at the Hong Kong Science Museum to share their personal experiences during research journeys, focusing on interpersonal and international communication and collaboration, and the impact of artificial intelligence on the entire scientific community under the theme "Future of

Science: Breakthroughs and Impacts".

The Shaw Prize 2024 exhibition is jointly presented by the Leisure and Cultural Services Department and The Shaw Prize Foundation, and is jointly organised by the Hong Kong Science Museum, the Hong Kong Space Museum, the Education Bureau and Hong Kong Education City. For details of the exhibition and activities, please visit hk.science.museum/en/web/scm/exhibition/shawprize.html, or call 2732 3232 for enquiries.



毫秒脈衝星：恆星計時器 Millisecond Pulsar: A Stellar Timekeeper

脈衝星是一種高速旋轉、釋放輻射的中子星，會規律地放射出極短而強烈的電磁輻射脈衝，被形容為「恆星計時器」。目前發現的脈衝星，其自轉週期約為 1 至 10 毫秒不等。其中最為精確的脈衝星是 PSR J1746-2446，自轉週期小至僅 1.5 毫秒，準確度每萬年僅有 7 微秒之差。目前發現的脈衝星，約 500 顆分布在銀河系內，其自轉週期約為 1 至 10 毫秒不等。

A pulsar is a rapidly rotating, extremely dense sphere that emits beams of electromagnetic radiation, including x-rays and radio waves, at regular intervals of milliseconds. It is often referred to as a "stellar timekeeper". The most precise pulsar discovered to date, PSR J1746-2446, has a rotation period of approximately 1.5 milliseconds, with an accuracy of only 7 microseconds over a period of 10,000 years.

Pulsars have been extensively studied since their discovery in 1967. They are highly stable timekeepers and are used in various applications, including navigation and timekeeping. The discovery of pulsars has provided valuable insights into the structure and behavior of neutron stars.

瞬態天文射電發射測量 2 號 Survey for Transient Astronomical Radio Emission 2

瞬態天文射電發射測量 2 號 (STAR2) 是一個旨在發現和研究瞬態天文射電發射的巡天項目。該項目利用中國射電天文學院 (CAST) 的 40 米射電望遠鏡進行觀測。STAR2 項目旨在發現和研究瞬態天文射電發射，包括脈衝星、快速射電暴 (FRB) 和伽馬暴 (GRB) 的射電發射。該項目預計將發現數百顆新的脈衝星和數千顆新的快速射電暴。

STAR2 項目由中國射電天文學院 (CAST) 和香港中文大學 (CUHK) 聯合進行。該項目預計將發現數百顆新的脈衝星和數千顆新的快速射電暴。該項目還將研究脈衝星的物理性質和快速射電暴的起源。

STAR2 項目還將研究脈衝星的物理性質和快速射電暴的起源。該項目預計將發現數百顆新的脈衝星和數千顆新的快速射電暴。該項目還將研究脈衝星的物理性質和快速射電暴的起源。