

P10

Cover Story

Chinese scientists have proposed the country's most ambitious space science mission to explore compact objects in the universe: black holes, neutron stars and quark stars. The enhanced X-ray Timing and Polarimetry mission (eXTP), which is an international consortium of more than 20 countries led by China, is going to cost three billion yuan (470 million US dollars) and scheduled to fly around the year 2025.

BCAS

Vol.32 No.1, 2018
Pages 1 — 64

Editor-in-chief

BAI Chunli

Executive Vice Editor-in-chief

ZHANG Tao

Vice Editors-in-chief

Mu-ming Poo, LI Guojie, FU Bojie, GUO Huadong, TAN Tieniu,
WANG Keqiang, WANG Xingdong

Editor

SONG Jianlan

Associate Editors

GUO Haiyan

XIN Ling

Design & Layout

YUAN Miao

General Editorial Office
Tel/Fax: 86-10-62542631
Email: bulletin@mail.casipm.ac.cn
P.O. Box. 8712, Beijing 100190, China

Sponsored by the Chinese Academy of Sciences
Published by Science Press
Domestic subscription (1 year): 400 yuan.

The views expressed in the *Bulletin of the Chinese Academy of Sciences* are those of the authors, and are not necessarily those of the Academy or the editors.

Contents



P5

Paleontologist CHANG Mee-mann receives the L'Oréal-UNESCO Award for Women in Science in Paris.

InBrief

- 2 CAS Announces Winners of International Scientific Cooperation Award 2017
- 3 Nobel Laureate Encourages Young People to Pursue Their Interest

InFocus

- 5 CAS Paleontologist Presented with L'Oréal-UNESCO Award for Women in Science
- 10 Chinese Scientists Unveil Plans to Build Next-generation X-ray Observatory

Highlights

- 13 CAS Research Highlighted in "Annual Top 10 Science Advances" 2017
- 20 Accelerated Drying Trend in Central Asia

Int'l Cooperation

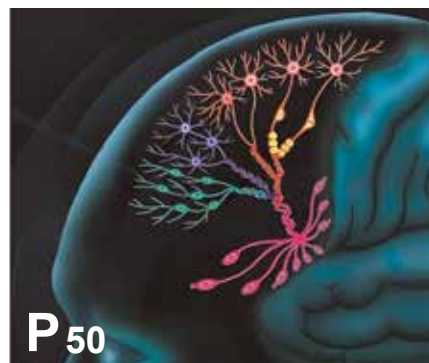
- 24 An Unforgettable Visit to the FAST Telescope
- 28 Working together on the Next Big Collider



The turn of Chinese New Year witnesses the release of the annual top 10 science advances of China. *Micius* catches the eyes of both S&T workers and laymen again topping the list.



Physicists are finalizing the conceptual design report of the Circular Electron Positron Collider, which will be roughly four times the size of the Large Hadron Collider. An international workshop is convened in Beijing to discuss the topic.



To investigate the development of human prefrontal cortex, a team at the Institute of Biophysics (IBP) draws a developmental landscape for this critical area via single-cell transcriptional profiling.

Thinktank Report

- 37 Promoting the Conservation of China's Lakes and Wetlands in a Comprehensive Way

Science Watch

Basic Science

- 41 Chinese and Japanese Astronomers Discover the Most Lithium-rich Stars
- 42 Precision Measurement of Dust Distribution in Milky Way
- 43 Magnon Valve Effect Between Two Magnetic Insulators
- 45 Topological Superconductivity Discovered on Surface of an Iron-based Superconductor
- 48 Graphene Network Structure of BCT-C₄₀: A New Topological Nodal-Net Semimetal

Life Sciences

- 50 Drawing the Developmental Landscape of the Human Prefrontal Cortex by Single-cell RNAseq
- 51 Tumor Catalytic Therapy with Nanozymes
- 53 New Holistic Biodiversity Tool for Cave Conservation

- 54 Land Plants First Appeared about 500 Million Years Ago

- 55 Novel Body Structure Likely Tied to Mating in New Extinct Insect Species

Earth Sciences

- 56 Changes in Central Asia's Water Tower: Past, Present and Future
- 58 How Ancient Genomics Unveils the Prehistory of Humans

Energy and Environment

- 60 A New Regionalization Scheme for Ecological Restoration on China's Loess Plateau
- 61 China's Key Ecological Restoration Projects Bring about Considerable Carbon Sequestration Effects, Study Shows

Technology

- 62 New Progress in High Resolution Ultrasound Imaging Technique
- 63 Researchers Reveal New Mechanism for Bone Formation
- 64 Understanding How Gut Bacteria Is Related to Type II Diabetes