

P213

Cover Story

Dark matter, which does not give off or absorb light, escapes ordinary measures of observation and so far human beings have not yet seen its "true colors" with any conclusive observation. Nicknamed "Wukong," the Dark Matter Particle Explorer (DAMPE) is among the numerous large-scale experiments trying to detect the remnants from the annihilation of a type of hypothetical particles predicted to constitute dark matter, the "weakly interacting massive particles." On Dec 7, 2017, the DAMPE collaboration reported in Nature the results from its first 530 days' observation, with refined spectral structure at TeV energies that has sparked a new wave of enthusiasm about this cosmic hermit. For more detail, please refer to page 213. (Image by courtesy of DAMPE collaboration)

BCAS

Vol.31 No.4, 2017
Pages 193 – 256

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, YANG Liuchun

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



P196

How to identify the "hottest" or the most advanced areas in science? An index report newly released by CAS in cooperation with Clarivate Analytics borrows a lens from the insider scientists themselves.

InBrief

- 194 CAS Elects New Members and Foreign Members
195 CAS Paleontologist Named L'Oréal-UNESCO Outstanding Women in Science

InFocus

- 196 "Wild-Type" Research Fronts as Defined by Peer Scientists
199 Progress Report on IAP's Project "Improving Scientific Input to Global Policymaking"
200 Academies in Action to Improve the Role of Science in Attaining Sustainable Development Goals
206 Searching for Science-based Solutions to Poverty Eradication and Sustainable Development

Highlights

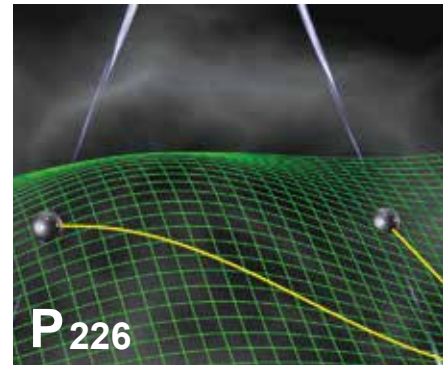
- 213 Understanding the Void: Wukong Fuels New Hope for the Search of Particle Dark Matter
219 Exceptionally Preserved Eggs and Embryos Reveal the Life History of a Pterosaur



Academies of sciences work together to improve input of science in global policy making toward attaining sustainable development goals set by UN, under the framework of an IAP program.



Pterosaur eggs and embryos well preserved with 3-D details help unveil life episodes of this winged dinosaur.



German and Chinese astronomers are working together on using pulsars to detect low frequency gravitational waves and other gravitational physics in space.

Facilities

222 New Synchrotron Facility to Be Constructed in Suburban Beijing

Policy

224 Towards a National Lab for Space Science

Int'l Cooperation

226 From Bonn to Beijing: Exploring the Gravitational Wave Spectrum and Beyond
— An Interview with Dr. Michael Kramer on German-Chinese Collaboration on Low Frequency Gravitational Wave Research

Thinktank Reports

233 Recommendations for the Development of the AI Industry in China

Science Watch

Basic Science

238 Understanding Heavy Quarkonium and QCD
239 China's 2.16m Telescope Helps Find Strangest Supernova
240 Revealing Ages and Masses of A Million Stars

Life Sciences

241 CAS Scientists Visualize the "Annual Rings" in Human Genome
243 New Evidence about Chicken Domestication in Northern China
244 Mekong-Salween Divide: The Floristic Boundary in Sino-Himalaya
245 New Species of Blue Mushroom Found in Southwest China

Earth Sciences

246 Fossil Wood *Xenoxylon* Indicates a Palaeoclimatic Cooling Event in 200 Ma

Environment

247 Biological Consequences of Climate Change on Epidemics May Be Scale-dependent
248 Negative Impacts of Climate Change on N, C Fixation in Plants

Materials

249 Using Planktonic Microalgae to Evaluate Marine Carbon Fixation
250 A Portable Multi-scale Ultrasound System for Brain Detection
252 A New Way to Prepare Shape-adaptable 3D Flexible Electronics
253 Toward Making Better Organic Semiconductors

Psychology

254 Augmented-reality Technology Could Help Treat "Lazy Eye"
256 Why Musical Training Benefits Us in Processing Speech