

# **Continental margin in South China: multidisciplinary frontiers in neutrino geoscience, First Circular**

## **华南大陆边缘地球科学-中微子科学交叉研讨会一号通知**

### **1. General information 会议基本信息**

**Date:** 21th-23th, July, 2017

**会议日期:** 2017年7月21日至2017年月23日

**Venue:** Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China

**会议地点:** 北京, 中国科学院高能物理研究所

**Workshop Goals:** to bring together those interested in understanding the 4D geological evolution of South China, including the adjacent South China Sea.

**会议主旨:** 促进地球科学-高能物理领域交叉融合, 利用新交叉手段了解华南及南海地区的构造演化

### **2. Topics and introduction 主题和内容**

**Topics for discussion:** tectonics, sediment basin development, accretion of Cathaysia, thermal evolution of the crust, neutrino geophysics

**会议讨论主题:** 华南地区构造、沉积盆地演变、华夏大陆再造、地壳热演化及地球中微子等

#### **Confirmed keynote speaker:**

Yifang Wang (IHEP, breakthrough prize winner)

William F McDonough (Univ. of Maryland/Tohoku Univ.)

Walter Mooney (US Geological Survey)

Shijie Zhong (Univ. of Colorado)

Yaoling Niu (Durham Univ./CAS)

Ondrej Sramek (Charles Univ. in Prague)

Sabin Zahirovic (Univ. of Sydney)

Irina M. Artemieva (Univ. of Copenhagen)

#### **主要主题报告人:**

王贻芳 (中科院高能所, 基础突破奖获得者)

William F McDonough (美国马里兰大学/日本东北大学)

Walter Mooney (美国地质调查局)

钟时杰 (美国科罗拉多大学)

牛耀龄 (杜伦大学/中科院海洋所)

Ondrej Sramek (捷克布拉格查理大学)

Sabin Zahirovic (澳大利亚悉尼大学)

Irina M. Artemieva (丹麦哥本哈根大学)

## Introduction:

The nature and formation of passive continental margins, the transition from continental to oceanic tectonic plates, are not well understood. Major population centers and economic resources are sited on such margins and thus this geological setting plays a special role in societal evolution. The continental margin of southern and eastern China records repeated Wilson cycles events, the opening and closing of ancient seas, and the outward growth of continental Asia. South China and its adjacent sea hold a valuable geological record endowed with abundant natural resources and a rich sedimentary history. This margin has been the curator of the geological information on the evolution of the continent and the surrounding ocean. We seek to translate this record of information into to a 4D picture of its evolution in time and space.

Models predicting the crustal structure and evolution of South China will be critically evaluated by the application of the new field of neutrino geoscience. Detections of geoneutrinos provide a new tool to map the amount and distribution of radiogenic heat sources in the Earth. To date, two experiments have captured geoneutrinos. The upcoming JUNO experiment, located on the continental margin of South China, will be 20 times bigger than any existing liquid scintillator detector when it's online in ~2020 and will document the abundances of Th and U in the crust surrounding the detector. In addition, data from JUNO will provide a better understanding of the building blocks that formed the Earth, constrain the Earth's thermal evolution, and define the planet's radiogenic power driving global dynamics, i.e., mantle convection and plate tectonics. Our workshop seeks to bring together interested groups of scientists to share their insights and work together to develop an integrated and coherent 4D history of South China.

## 会议介绍:

被动大陆边缘是认识大陆边缘演化、板块俯冲起始从而发展板块构造理论的重要场所。然而目前对被动大陆边缘的性质、形成以及从陆壳到洋壳的过渡带等重要科学问题尚不明确。

华南地区的大陆边缘记录了多期威尔逊旋回事件、古代海的打开和闭合，以及亚洲大陆增生。华南及周围海域拥有宝贵的地质记录，获取该区的地质信息可以重构时空演化的 4D 图像，对于认识上述被动大陆边缘的科学问题具有重要的意义。

地球中微子是地球内部放射性元素衰变产生的，地球中微子的探测可以提供一种新的途径来约束地球内部放射性元素的总量和分布。在建的江门地下中微子实验（JUNO）位于华南大陆边缘，其探测器体积比目前世界上其它探测器大 20 倍左右。因此 JUNO 将最为准确地探测地球中微子并探测地球内部 Th 和 U 的丰度，可潜在应用于评估关于华南大陆边缘地区岩石圈内部圈层成分特征，有助于建立更加准确的岩石圈演化模型。

此外，结合全球其它地球中微子探测数据，JUNO 能够更好地了解地球形成模型，约束地球的热演化，确定驱动地球内部动力的能量。

本次会议希望能够召集感兴趣的相关课题组，促进地球科学-高能物理领域交叉融合，加深对华南地区构造演化的认识。

### 3. Schedule: 会议日程

Date 日期	Activities 日程
21 July, 2017 2017年7月21日	Onsite Registration 报到
22 July, 2017 2017年7月22日	Opening Ceremony and Technical Sessions 开幕式及报告
23 July, 2017 2017年7月23日	Technical Sessions and Closing Ceremony 报告及闭幕式

### 4. Registration and abstracts 注册和摘要征集

**Website:** <http://indico.ihep.ac.cn/event/6938/>

Deadline for registration: 16<sup>th</sup> July 2017

Deadline for abstract: 30<sup>th</sup> June 2017

Registration fee: None.

Abstract: Related to the topic of the meeting, within one page

Language: English

网址: <http://indico.ihep.ac.cn/event/6938/>

摘要截止日期: 2017年6月30日

注册截止日期: 2017年7月16日

注册费用: 无

征稿内容: 和会议主题相关, 一页以内

会议语言: 英语

### 5. Committee 组织机构

#### **Academic Committee:**

Yifang Wang, Institute of High Energy Physics, Chinese Academy of Sciences

William F McDonough, University of Maryland/Tohoku University

学术委员会成员

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Jun Cao, Institute of High Energy Physics, Chinese Academy of Sciences

Liang Zhao, Institute of Geology and Geophysics, Chinese Academy of Sciences

Guiling Wang, Institute of Hydrogeology and Environmental Geology, Chinese Academy of Geological Sciences

组委会主席

曹俊, 中科院高能物理研究所

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**组委会成员**

李玉峰，中科院高能物理研究所

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**Host:**

Institute of High Energy Physics, Chinese Academy of Sciences (IHEP, CAS)

主办单位:

中科院高能物理研究所

**Partnerships:**

Institute of Geology and Geophysics, Chinese Academy of Sciences (IGG, CAS)

Institute of Hydrogeology and Environmental Geology, Chinese Academy of  
Geological (IHEG, CAGS)

Beijing Institute of Spacecraft Environment Engineering, China Academy of Space  
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