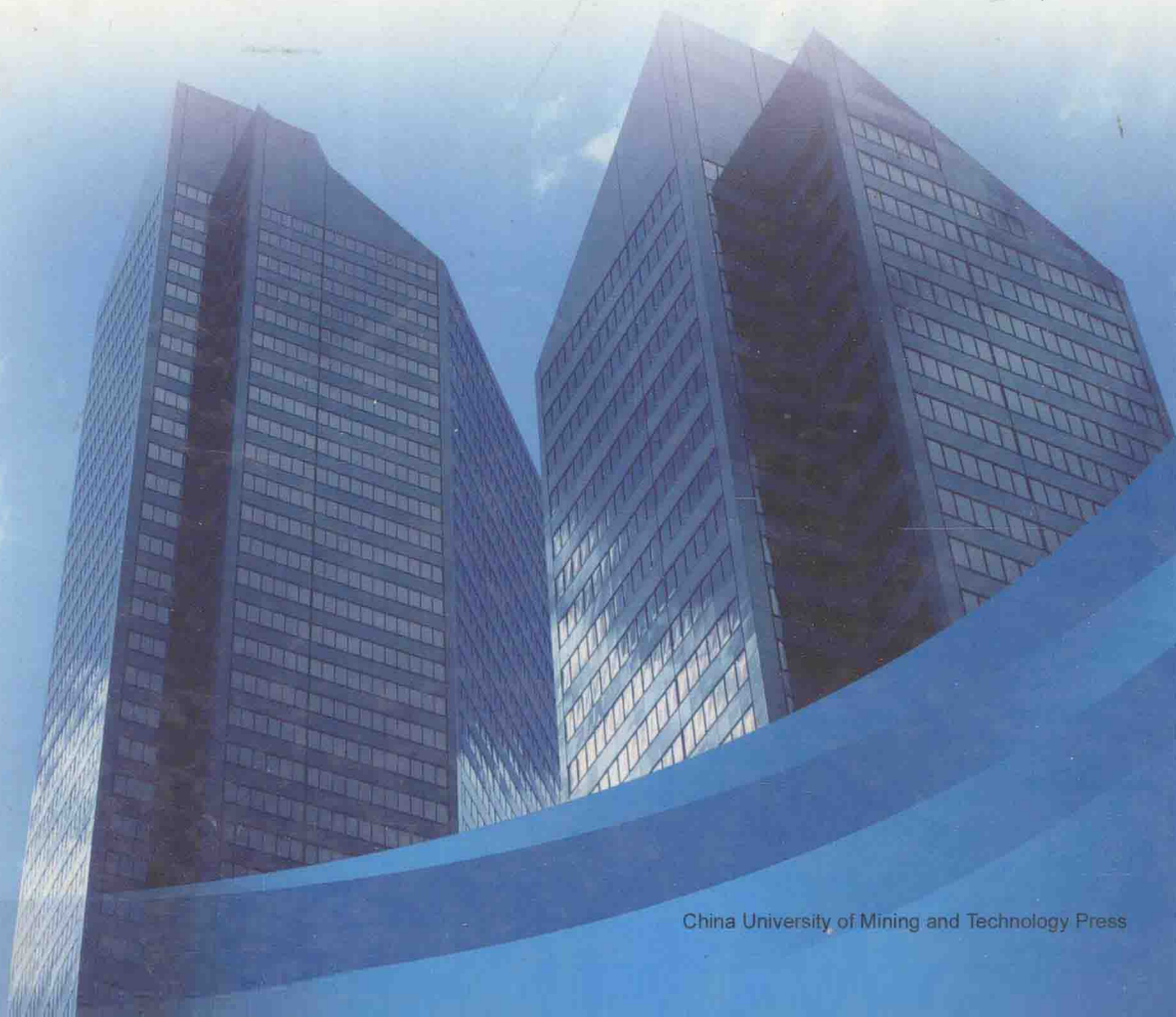


# ADVANCES IN GEOTECHNICAL AND STRUCTURAL ENGINEERING

— Proceedings of the Fifth China-Russia Symposium on Underground  
and Building Engineering of City and Mine

Edited by Wang Lai Qiao Weiguo  
Wang Chongge Zhang Xiantang  
S. D. Evmenov



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# **Proceedings of the Fifth China-Russia Symposium on Underground and Building Engineering of City and Mine**

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## **BRIEF INTRODUCTION**

In the 21<sup>st</sup> century Sino-Russian experts and scholars are faced with the common research task in geotechnical and structural engineering. At present, both countries have already made some outstanding achievements in the theoretical research and applying technology in the fields of geotechnical and structural engineering, which has laid a solid scientific foundation for the rapid development of underground engineering of city and mine and ground structural engineering in recent years.

Shandong University of Science and Technology (China) has closely cooperated with Kuzhibas National Technology University (Russia) in learning and scientific research for many years. The Fifth China-Russia Symposium on Underground and Building Engineering of City and Mine will be held in Qingdao, China. The book is the proceedings of the symposium, which basically reflects the latest achievements in the theoretical research and applying technology in the fields of urban underground geotechnical engineering, blasting engineering and structural engineering.

The proceedings will be available for those engaged in mine construction, geotechnical engineering, civil engineering, mining engineering and relative engineers in research, design and construction.

## PREFACE

Nowadays, China and Russia are the major coal-producing countries in the world. Both countries have made outstanding achievements in geotechnical engineering and structural engineering. Furthermore, both countries have had close cooperation in mine construction and mining, and a great development has been made in theoretical research and applying technology in the past decades. Some great achievements have also been made in coal mining, mine construction and laneway support.

With the acceleration of urbanization, the former Soviet Union built subways in some big cities like Moscow and St. Petersburg in 1930s, which have presently formed the all-direction sub-transportation networks, with Subway of Moscow having possessed the biggest carrying capability in the world. At present, the subways in Beijing, Shanghai, Hongkong, Guangzhou have been in operation and extension. Moreover, such big cities as Shenzhen and Qingdao are constructing and going to construct their subways and some other underground projects, which demands our scientific researchers' constant exploration, investigation and practice.

Sino-Russian scientific researchers have also made many outstanding achievements in new technology, new materials, new theories and methods of architectural structure engineering, which has laid the solid scientific foundation for the rapid development of underground engineering of city and mine and ground structure engineering in recent years.

Shandong University of Science and Technology (China) has closely cooperated with Kuzhibas National Technology University (Russia) in learning and scientific research for many years. In order to extend the Sino-Russian cooperation and exchange in science and technology, the two countries agreed that China-Russia symposium on underground engineering of city and mine would be held once every two years in 1998. The first symposium had been already held in April, 2000 in Tai'an, China, the second one held in October, 2002 in Kemailovo, Russia, and the third one was held in September, 2004 in Qingdao, China. It is just in this symposium that they first extended the topic into structural engineering. The fourth one was also held in September, 2006 in Kemailovo, Russia. Three hundred papers either from China or Russia have been gathered in the first four symposiums, which has not only reflected the main achievements in underground engineering of city and mine and structural engineering, but also laid a more solid foundation for further mutual cooperation.

The Fifth China-Russia Symposium on Underground and Building Engineering of City and Mine will be held in Sept. 26-28, 2008 in Qingdao, China. Ninety-seven papers have been gathered in this proceedings, including seventy-two papers from China and twenty-five papers from Russia. These papers involve three aspects on urban underground geotechnical engineering, blasting engineering and structural engineering, which basically reflects the recent developing actualities and the main achievements of the scientific research fields mentioned. We deeply believe that this symposium will promote the further development in theory and technology of geotechnical and structural engineering in our two countries.

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**PART 1   GEOTECHNICAL AND  
UNDERGROUND  
ENGINEERING**





## COLLABORATION BETWEEN KUZBASS STATE TECHNICAL UNIVERSITY AND SHANDONG UNIVERSITY OF SCIENCE AND TECHNOLOGY (THE PEOPLE'S REPUBLIC OF CHINA)

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### Abstract

There is a description of history, development and achieved results of the mutually beneficial cooperation between two representatives of the High Schools of China and Russia - Shandong University of Science and Technology and Kuzbass State Technical University in the article.

**Key words:** Collaboration

### 1 Introduction

The first contacts between the two schools are referred back to 1989, when representatives of at that time Kuzbass Polytechnic Institute and Shandong Mining Institute run negotiations and studied the situation and since 1990 have launched to send teaches for lectures reading. These contacts were not fortuities. Kuzbass Polytechnic Institute "grew up" from Kemerovo Mining Institute, and Shandong Mining Institute was founded in 1951 on the basis of Shandong College of Coal Industry, Huannan Mining Institute, Jiangxi Coal Mining College and Jiangsu Mining Institute.

The first agreement between the institutes was signed in 1991. It provided the reciprocated exchange by educators for reading of lectures and improvement of qualification, training of employees (for PhD and MA), cooperation in scientific research works, and exchange by textbooks, teaching materials and scientific literature. The Agreement was signed by Rectors, Pr. Safokhin M. S. and Shen Guanghan. At that time the Professors Ryzhkov Yu. A., Egorov P. V., Nesterov V. I., Vylegzhanin V. N. and Associated Professor Yurchenko V. M went to China to read lectures; and Pr. Razgildeev G. I. and Associated Pr. Baranov S. D. combined this job with scientific researches.

Within the frames of the Agreement three employees of Shandong University of Science and Technology enrolled to Kuzbass Polytechnic Institute for a postgraduate education; there are Qiao Wei-Yuo, Li Chang-Cheng and Yu Sjeng-Wen, who wrote PhD thesis under monitor of Professors Kolmakov V. A., Pershin V. V. and Vylegzhanin V. N. Simultaneously Karpov A. B., Kolmakov A. V and D. A. Ulyanov, the employees of KuzSTU were sent to Shandong Mining Institute (hereinafter, SMI) for magistrate education. In spite of a number of objective difficulties, all of them successfully graduated, and in 1995 they defended their PhD thesis in KuzSTU, and in SMI - defended their master thesis.

That was the first great success of the commenced cooperation. In fall of 1995 the second Agreement for Cooperation was signed, and in 1998 - the third one. By that time the following professors were awarded a title of Honorable; Pershin V. V., Kolmakov V. A., Vice-Rector Evmenov S. D. and rectors of KuzSTU V. V. Kurekhin and V. N. Vylegzhanin (at the present time both passed away).

In August 1999 SMI was renamed into Shandong University of Science and Technology (hereinafter, SUST) and the collaboration has been continuing. In 2002 rody the fourth, and