

# THE 6<sup>th</sup> INTERNATIONAL SYMPOSIUM ON CEMENT & CONCRETE

## CANMET/ACI INTERNATIONAL SYMPOSIUM ON CONCRETE TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

SEPTEMBER 19-22, 2006  
XI'AN, CHINA

VOLUME 1



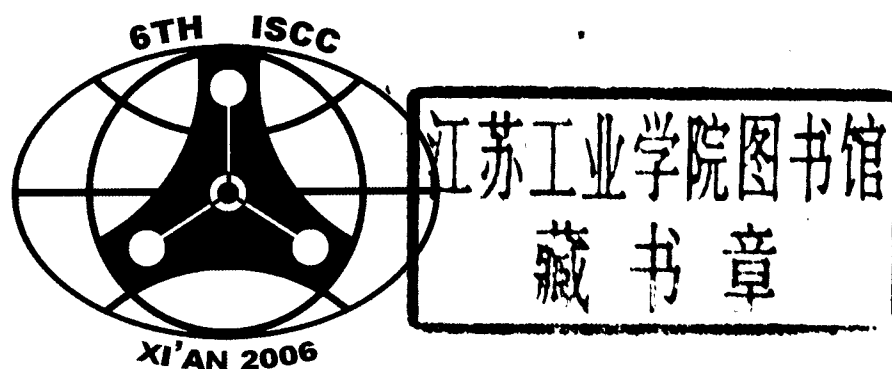
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# **Cement & Concrete, Contributing to Global Sustainability**

**PROCEEDINGS OF  
THE 6<sup>th</sup> INTERNATIONAL SYMPOSIUM  
ON CEMENT & CONCRETE**

**CANMET /ACI INTERNATIONAL SYMPOSIUM ON  
CONCRETE TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT**

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## Conference Review

### International Symposium on Cement and Concrete (ISCC)



The 5<sup>th</sup> ISCC was held in October, 1998 in Shanghai, China. It was organized by the Chinese Ceramic Society (CCS) and sponsored by China Building Materials Academy (CBMA) and Tongji University. The theme of the symposium was to promote the sustainable development of cement and concrete industries in the 21<sup>st</sup> century. There were 254 delegates including 80 international participants from 20 countries to attend the conference. 219 papers, including 70 papers from abroad, were collected in the proceedings of the symposium.



The 4<sup>th</sup> Beijing International Symposium on Cement & Concrete (BISCC) was held in October, 1998 in Beijing. It was organized by CCS and sponsored by CBMA. There were 294 delegates including 72 international participants from 21 countries to attend the conference. 195 papers, including 76 papers from abroad, were collected in the proceedings of the symposium.



The 3<sup>rd</sup> BISCC was held in October, 1993 in Beijing. It was organized by CCS and sponsored by CBMA. There were 360 delegates including 130 international participants from 21 countries to attend the conference. 267 papers, including 97 papers from abroad, were collected in the proceedings of the symposium.



The 2<sup>nd</sup> BISCC was held in September, 1989 in Beijing. It was organized by CCS and sponsored by CBMA. There were 212 delegates including 34 international participants from 13 countries to attend the conference. 160 papers, including 33 papers from abroad, were collected in the proceedings of the symposium.



The 1<sup>st</sup> BISCC was held in May, 1985 in Beijing. It was organized by CCS and sponsored by CBMA. There were 215 delegates including 74 international participants from 13 countries to attend the conference. 141 papers, including 64 papers from abroad, were collected in the proceedings of the symposium. After 1985, BISCC was being held every four years.

### CANMET /ACI International Symposium on Concrete Technology for Sustainable Development

This event started in 1978 with objectives to transfer concrete technology worldwide. Today more than 40 international conferences and seminars have been held worldwide in USA, Canada, India, France, Japan, Spain, Greece, Romania, Singapore, Australia, Germany, Lebanon, Norway and now in China.

Themes covered: Fly ash, silica fume, slag and natural pozzolanas, Durability of concrete, Superplasticizers and other chemical admixtures, Concrete in marine environment, NDT Sulphur in concrete, Sustainability in concrete technology and Advancement in concrete technology.

CANMET and ACI are principal sponsors and referred proceedings are published by the American Concrete Institute.

The Permanent Committee is chaired by Prof. Mohan Malhotra and there are 6 other members. The Committee is located in Ottawa-Montreal, Canada.

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## CANMET/ACI INTERNATIONAL SYMPOSIUM ON CONCRETE TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

SEPTEMBER 19~22, 2006

XI'AN, CHINA

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## **PREFACE**

Sponsored by the Chinese Ceramic Society and Committee for the Organization of CANMET/ACI International Conferences (American Concrete Institute Council), The 6<sup>th</sup> International Symposium on Cement and Concrete (6<sup>th</sup> ISCC), formally known as the Beijing International Symposium on Cement and Concrete, and CANMET/ACI Conferences, started in 1978 with objectives to transfer concrete technology worldwide, are held together in Ana Grand Castle Hotel in Xi'an, P. R. China from Sept. 19 to 22, 2006.

The objectives of the symposium are to review the latest advances in the fields of cement and concrete since 5<sup>th</sup> International Symposium held in 2002 in Shanghai, and to provide a forum for discussion on the how to promote the Contribution of the Cement & Concrete to Global Sustainability.

The proceedings, which comprise 251 papers to be committed by the 6<sup>th</sup> ISCC Academic Committee, cover four themes, namely the new technology and equipment for cement manufacturing, Portland cement and special cement, concrete, dry-mixed mortar and cement product and mineral admixture and chemical admixture.

The work of the event was an immense undertaking and all of involved are gratefully acknowledged, in particular, the members of the Organizing Committee for managing the event from start to finish, the members of the Academic Committee for advising the selection and reviewing of the papers, the members of the Editing Committee for editing the proceedings, the organizations for their invaluable contributions to the symposium and the proceedings.

Professor Yao Yan

Chairlady of the Academic Committee of the 6<sup>th</sup> ISCC  
& CANMET /ACI International Symposium on  
Concrete Technology for Sustainable Development

Xi'an, P. R. China  
Sept 19, 2006



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