



**IASMiRT**

## ***Transactions***

**17<sup>th</sup> International Conference on  
Structural Mechanics in  
Reactor Technology**

**August 17 – 22, 2003 Prague, Czech Republic**

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**Brno University of Technology  
Antoninska 1, 601 90 Brno, Czech Republic**



# PREFACE

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I welcome you to the 17<sup>th</sup> International Conference on Structural Mechanics in Reactor Technology (SMiRT 17) and in the capital of the Czech Republic – Prague.

SMiRT 17 follows 16 successful biennial conferences organized in major cities around the world. The first International Conference SMiRT 1 was held in Berlin in the year 1971. The International Association for Structural mechanics in Reactor Technology (IASMiRT) was founded in Berlin in the year 1971, too. IASMiRT is registered as a non-profit International Scientific and engineering society. The last International Conference SMiRT 16 was held in Washington DS in the year 2001.

The SMiRT 17 provides a forum for the discussion of advances in recent research in the field of structural mechanics used for design, analyses and assessment of materials loaded in operation conditions, for lifetime management of nuclear power plant components. Specialists can exchange of updated experiences with each other in the areas of seismic analyses, reliability, probability, inspection, maintenance, aging, life extension, damage of materials, inspection decommissioning, waste management, etc.

The International Conference SMiRT 17 provides possibilities for students and young engineers to meet the leading specialists in the area of structural mechanics. The leading specialists have the possibilities to give their knowledges and experiences to young beginning generation of future specialists. The aim of the SMiRT 17 is to bring together experts in basic and applied science as well as design and service engineers interested in ongoing research in the field of structural mechanics.

Executive committee of the SMiRT 17 in accordance with the IASMiRT Board of Directors chose the six Invited Lectures presented by leading specialists in the field of structural mechanics.

The call for papers had on overwhelming response. Many distinguished specialists from all over the world submitted more than 600 abstracts and the International Scientific committee were forced to assesses and include them to 13 Divisions and their sessions. This book contents 390 abstracts of received manuscripts. The full text of received manuscripts was inserted on CD Proceedings.

There is a hope that the Conference Proceedings will serve as a comprehensive compilation of the present knowledge and experience and will be used by engineers, designers and operators who are concerned with the subjects presented at the International Conference SMiRT 17.

On behalf of the Executive committee of the SMiRT 17, I wish to thank all the authors, invited lecturers, session chairman, members of the International Scientific Committee, National coordinators and numerous others who helped to shape the content of this conference. I should like thank Mrs. Magda Sivakova from Institute of Applied Mechanics Brno and Mrs. Karin Vejvodova from the Brno branch of the Travel Agency TERIS 2002, whose administrative and organizational works were the prerequisite for a successful conference.

Thank you for joining me at this momentous occasion. Enjoy the Prague, take and give knowledge. Join us again in Beijing, August 2005.

Stanislav Vejvoda

Chairman of the SMiRT 17

President of the IASMiRT



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The Senior Advisory Board of SMiRT 17 consists of the representatives of the Czech and Slovak Technical Universities, Institutes, industry and government leaders. They will give much needed direction to make the conference relevant to its audience. Their willingness to lend support is evidence that nuclear energy is important to the Czech and Slovak Republics and the world and that SMiRT 17 will play a significant role in harnessing this energy.

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**IASMiRT**

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IASMiRT was founded in Berlin in 1971 as a registered non-profit international scientific and engineering society. It promotes and fosters international communication in the field of structural mechanics as applied to reactor technology. In keeping with its objectives, the Association sponsors biennial International Conferences on Structural Mechanics in Reactor Technology (SMiRT).





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**Thomas A. Jaeger (1929/1980)**

**Zenons Zudans (1918/1983)**

**Antoni Sawczuk (1927/1984)**

**Stanley H. Fistedis (1925/1987)**



The SMiRT conferences bring together scientists and engineers who deal with all aspects of structural mechanics applied to buildings and components in nuclear power plants.

SMiRT 17 is organized by the Brno University of Technology under the guidance of the International Association for Structural Mechanics in Reactor Technology (IASMiRT) and in cooperation with the Czech Association of Mechanical Engineers, the Czech Technical University Prague, the Nuclear Society of the Czech Republic, the Nuclear Society of the Slovak Republic, under the auspice the State Office for Nuclear Safety and the Ministry of Industry and Trade of the Czech Republic.

SMiRT 17 has 14 divisions representing specific areas for paper presentations. It will feature plenary lectures in which distinguished speakers will deliver comprehensive coverage of important topics of interest to broad cross section of the audience. Workshop sessions are organized in some divisions for intense discussion among participants and the audience on issues with diverse perspective.

Post-conference seminars PCS 15 and PCS 21 will be held in pleasant areas of the Slovak Republics and Germany. These seminars will treat important topics in greater depth than possible in paper sessions.



## Previous SMiRT Conferences

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<b>1<sup>st</sup></b>	<b>Berlin</b>	<b>1971</b>	<b>Thomas. A. Jaeger</b>
<b>2<sup>nd</sup></b>	<b>Berlin</b>	<b>1973</b>	<b>Thomas. A. Jaeger</b>
<b>3<sup>rd</sup></b>	<b>London</b>	<b>1975</b>	<b>Howard Gott</b>
<b>4<sup>th</sup></b>	<b>San Francisco</b>	<b>1977</b>	<b>Bruno A. Boley</b>
<b>5<sup>th</sup></b>	<b>Berlin</b>	<b>1979</b>	<b>Thomas A. Jaeger</b>
<b>6<sup>th</sup></b>	<b>Paris</b>	<b>1981</b>	<b>Jean Rastoin</b>
<b>7<sup>th</sup></b>	<b>Chicago</b>	<b>1983</b>	<b>Stanley H. Fistedis</b>
<b>8<sup>th</sup></b>	<b>Brussels</b>	<b>1985</b>	<b>Sergio Finzi</b>
<b>9<sup>th</sup></b>	<b>Lausane</b>	<b>1987</b>	<b>Folker H. Wittmann</b>
<b>10<sup>th</sup></b>	<b>Anaheim</b>	<b>1989</b>	<b>Asadour H. Hadjian</b>
<b>11<sup>th</sup></b>	<b>Tokyo</b>	<b>1991</b>	<b>Heki Shibata</b>
<b>12<sup>th</sup></b>	<b>Stuttgart</b>	<b>1993</b>	<b>Karl F. Kussmaul</b>
<b>13<sup>th</sup></b>	<b>Porto Alegre</b>	<b>1995</b>	<b>Jorge D. Riera</b>
<b>14<sup>th</sup></b>	<b>Lyon</b>	<b>1997</b>	<b>Michel Livolant</b>
<b>15<sup>th</sup></b>	<b>Seoul</b>	<b>1999</b>	<b>Sung Pil Chang</b>
<b>16<sup>th</sup></b>	<b>Washington, DC</b>	<b>2001</b>	<b>Ajaya Kumar Gupta</b>



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