#### THE TWENTY SECOND DANUBIA - ADRIA SYMPOSIUM

Parma, Monticelli Terme, Italy, 2005



Parma is an attractive historic city in the Emilia-Romagna Province situated on the Parma River northwest of Bologna, with a population of about 190,000. It was founded

by the Romans along the Via Emilia in 183 BC. Via Emilia was a Roman road connecting Arminium (Rimini) on the Adriatic coast and Platentia (Piacenza) on the Padus (Po) River. The city was sacked by Attila the Hun and later destroyed by Ostrogoths. Parma was then

ruled by Byzantines, Lombards and Francs. In 1106, Parma became an independent city-republic. In 1545, the city became the capital of the Duchy of Parma and Piacenza. It was annexed to Piedmont in 1860. A year later, it joined the newly-formed Kingdom of Italy. Parma's prime tourist attraction is an octagonal Baptistery completed in 1270, after 80 years of construction. The cathedral dates back to the 11th century. The Assumption of the Virgin is a fresco by the late Renaissance painter Antonio da Correggio that decorates the dome of the Cathedral. It was completed in 1530.



The Cathedral built in 1059, with the Gothic belfry added in 1284-1294



Baptistery dating back to 1196-1270

The 22<sup>nd</sup> Danubia-Adria Symposium took place in the Monticelli Terme Park, about 10km south of Parma, the city famous all over the world for its cultural and gastronomic tradition.



Arrival at the Monticelli Terme



Leaving Monticelli Terme



22<sup>nd</sup> DANUBIA-ADRIA Symposium on Experimental Methods in Solid Mechanics

September 28 - October 1, 2005 Monticelli Terme / Parma, Italy http://www.cdm.unipr.it/danubia-adria

### First announcement

Organized by: Italian Association for Stress Analysis (AIAS)

Italian Association for Jeress Analysis (AGG)

Co-organized by:
Austrian Society of Experimental Strain Analysis (ASESA)

Croatian Society of Mechanics (HDM)
Czech Society of Mechanics (GSM)
Hungarian Scientific Society of Mechanical
Engineering (GTE)
Committee for Mechanics the Polish Academy of
Sciences (KMPAM)
Romanian Association for Stress Analysis
(ARTENS)
Slovak Society of Mechanics (SSM)

#### Scientific Board

Austria: J. Eberhardsteiner W. Eichlseder (Vienna) (Leoben) Croatia: I. Alfirević Czech Republic: S. Holý F. Plánička Hungary: Italy: (Bologna) (Parma) R. Bedziński J. Stupnicki (Wrocław) (Warsaw) Romania: N. Iliescu I. Pastrav (Bucarest) (Cluj-Napoca) Slovakia: O. Bokúvka (Čliy-Napoca)
Slovakia: J. Benčat (Žlina)
Honorary Members of International Scientific Board:
HR Prof. Dr. Rudolf Beare (Vienna)
Prof. Dr. István Huszár (Godölló)

#### **Local Organizing Committee**

G. Medri G. Nicoletto (Chairman) A. Pirondi (Secretary) E. Riva (Secretary)

#### Scope of DAS 2005

The 22° Danubia-Adria Symposium on Experimental Methods in Solid Mechanics (DAS 2009) is aimed at providing a forum for engineers, essentiations, university teachers and students, scientists and intustine experts to present and discuss the current status, present and discuss the current status, and the separation of the control of the

#### Conference Venue

The 22<sup>nd</sup> Danubia-Adria Symposium will take place in the Park of Terme (spa) di Monticelli, only 10 km south of Parma, the city famous all over the world for its cultural and gastionomical tradition. The use of thermal springs in the village of Monticelli dales back to the beginning of the last

#### 22<sup>nd</sup> Danubia-Adria Symposium on Experimental Methods in Solid Mechanics

Monticelli Terme - Parma – Italy September 28 – October 1, 2005



Extended abstracts

#### The First Announcement and the Symposium Proceedings



Scientific Committee meeting

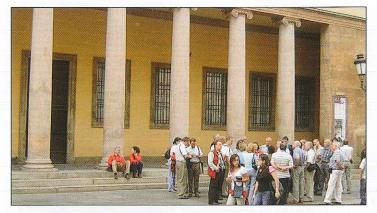


Leaving Monticelli Terme

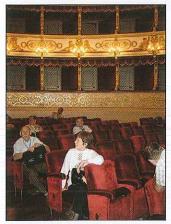




Opening of the 22nd Danubia-Adria Symposium











Visit to Parma









Symposium dinner

On the occasion of the Scientific Committee meeting, it was concluded that the name of the Danubia-Adria Symposium on Experimental

Methods in Solid Mechanics should be changed into:

## Danubia-Adria Symposium on Developments in Experimental Mechanics

Country	Number of papers	Three hund	dred and twenty auth	ors and co-
Austria	15	authors from 13 countries submitted a total of 142 papers. On top of 11 countries listed in the Table, two co-authors came from the UK and one came from Switzerland. All papers were allocated to 4 sessions:		
Croatia	10			
the Czech Republi	c 40			
German	9			
Hungary	9			
Italy	15			
Poland	20	Session A	Experimental	
Romania	11		Mechanics	32 papers
Slovakia	10	Session B	Biomechanics	30 papers
Japan	1	Session C	Materials	38 papers
USA	1	Session D	Structures, Systems	
Total	142		and Components	43 papers

#### THE TWENTY THIRD DANUBIA-ADRIA SYMPOSIUM

Podbanské, the Slovak Republic, 2006



The village Podbanské is situated between the West and the High Tatras. The foundation of the Village is connected to the mining industry and took place in the 15<sup>th</sup>

century. It represents the western part of the conglomerate known to be a famous tourist destination and named Vysoke Tatry (High Tatras), located at the elevation of 940 above the sea level. A simple hostel was built there in 1925. Shortly before the World Ski Championship organized in 1970, Permon and Kriváň Hotels were opened. The 23<sup>th</sup> Danubia-Adria Symposium took place in the Grand Hotel Permon, one of the largest and the most exclusive hotels in the region. Above Podbanské and the Permon Hotel stands the majestic Tatra peak Kriváň, 2,499m high.



Neighbourhood of Podbanské



Panorama of Žilina

The Spring Meeting precedent to the 23<sup>rd</sup> Danubia-Adria Symposium took place in Žilina. At the Žilina meeting, the conclusion that Spring Meetings are no longer necessary was reached, since the Scientific Committee members were now able to communicate and come to all relevant conclusions via an e-mail.



The Spring Meeting venue



Welcoming the participants

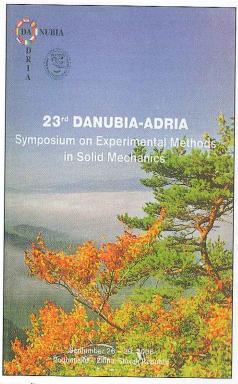


Scientific Committee in session

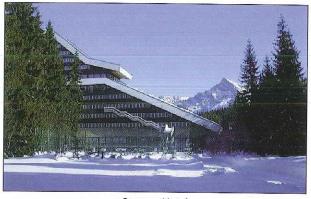
The 23<sup>rd</sup> Danubia-Adria Symposium took place in Permon Hotel, Podbanské, between



Austria:	J. Eberhardsteiner W. Elchlseder	(Vienna) (Leoben)
Crostia:	I. Alfirević S. Jecić D. Semenski	(Zagreb) (Zagreb) (Zagreb)
Czech Republi		(Prague) (Pizeñ)
Hungary:	L. Borbás F. Thamm	(Budapest) (Budapest)
Italy:	A. Freddi G. Nicoletto	(Bologna) (Parma)
Poland:	R. Bedziński J. Stupnicki	(Wroclaw) (Warszaw)
Romania:	N. Illescu I. Pastrav	(Bucarest) (Cluj-Napoc
Slovak Republi	ic: O. Bokůvka J. Benčat	(Žilina) (Žilina)
	bers of International Scientifi HR Prof. Dr. Rudolf B Prof. Dr. István Huszá	eer (Vienna)
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Scope of DA The 23 <sup>th</sup> Danut in Solid Mechai or engineers, icientists and current status development ir mechanics. For f. experimental structures, servi Symposium The 23 <sup>th</sup> Danubli Odbanské is r he gateway to y the majestic Rooms, are aw	HR Prof. Dr. Rudoif B Prof. Dr. István Huszá  AS 2006  Jia-Adria Symposium on Expires (DAS 2008) is aimed a  researchers, university lead  researchers, university lead  and impact of modern  the field of experimental  cus will be on recent research  and hybrid methods for que  cus will be on recent research  and thybrid methods for que  ce life and technical safety.  Venue and Hotel Acc.  Adria Symposium will take  mountain village (940 metre  the western part of the Irigh  Tafrais poak named Kriváň (2  alabel in hotels in Podus  let Kriváň (2  alabel in Hotels in Podus  let Kriváň (2  aras forests.)	per (Vienna) ur (Gödölló) va (G



The First Announcement and the Symposium Proceedings



Permon Hotel



Tatra peak Kriváň, 2,499m high





The second Meeting of the Scientific Committee





Opening of the Symposium





Presentation of the contributions





Coffee break





Symposium participants





Symposium participants

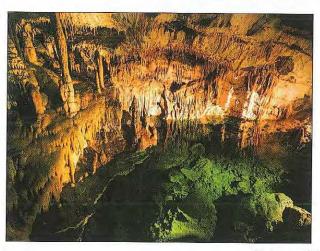
The participants of the Symposium visited the Demanovská Cave of Liberty (Demanovská Jaskyna Slobody), the longest cave system in Slovakia. Its length is about 8km, with the

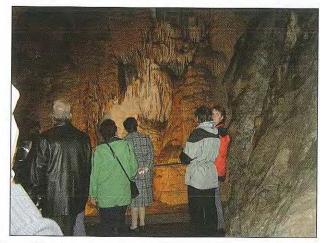
elevation span of 120m. The cave is located on the northern side of the Low Tatras in Demanovská Valley, between Liptovský Mikulaš and Jasná ski resort.





Entrance to the Demanovská Cave of Liberty





Demanovská Cave of Liberty

Country	Number of paper		
Austria	12		
Croatia	6		
the Czech R	epublic 24		
Hungary	9		
Italy	10		
Poland	23		
Romania	4		
Slovakia	18		
Germany	4		
Japan	1		
Total	111		

1111

Two hundred and eight authors and coauthors from 13 countries submitted a total of 111 papers. On top of the countries of the authors' establishment listed above, several co-authors came from France, New Zealand and the UK.



Location of the Cave

## THE TWENTY FOURTH DANUBIA-ADRIA SYMPOSIUM Sibiu, Romania, 2007



Sibiu (German: Hermannstadt; Hungarian: Nagyszeben) is a city in Transylvania, with a population of about 140,000. It lies on the Ciban River, a tributary of the Olt River,

at the elevation of 410 to 425m above the sea level. It is located about 280km northwest of Bucharest, near the geographical centre of Romania. Sibiu was initially a Daco-Roman city called Cedonia. Its later Latin name Cibinium derives from that of the River and was first mentioned in 1191, when the Pope Celestin III acknowledged the existence of the Saxon settlers. A citadel built by the Saxons in the 13<sup>th</sup> century was destroyed by the Mongols in 1241. Later rebuilt, it was an important trade centre of the 14<sup>th</sup> century. The Ottomandependent Principality of Transylvania was founded in 1570, after the Ottoman Conquest of Hungary. After the Battle of Vienna that took place in 1683, the Habsburgs of Austria gradually occupied southern Hungary and Transylvania. Between 1692 and 1791, Sibiu was the capital of Transylvania.



Centre of the City





Scientific Committee meeting

Sibiu is one of the most important cultural centres of Romania. It was designated as the European Capital of Culture in 2007, i.e. in the same year in which the 24<sup>th</sup> Danubia-Adria Symposium took place. The prominent sights of Sibiu are Brukenthal Museum, founded by Samuel Brukenthal in his Baroque residence. The Museum is in possession of collections

of paintings, engravings, antiques, books, and collections dealing with ethnography and natural sciences. Sibiu also harbours the Lutheran Cathedral built between the 13<sup>th</sup> and the 15<sup>th</sup> century, the Roman Catholic Church dating back to the 18<sup>th</sup> century, and the Orthodox Cathedral built in 1906 and modelled on the Hagia Sophia of Istanbul.









Opening of the Symposium





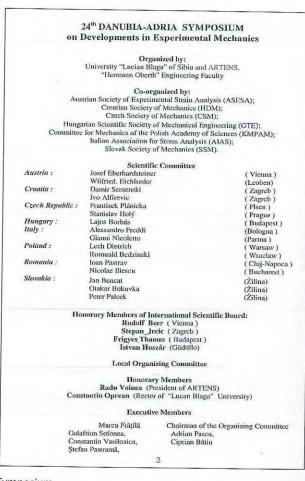
Visit to the ethnic village

In line with the conclusion reached by the Danubia-Adria Committee at Žilina Meeting, no Spring Meeting had been held this time.

This was also the very first occasion on which the new name of the Symposium, reading as follows, was used:

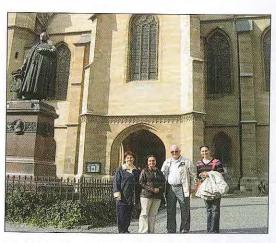
# The 24<sup>th</sup> Danubia-Adria Symposium on Developments in Experimental Mechanics



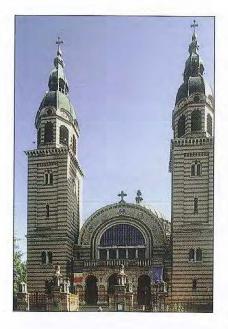


Opening of the Symposium





Accompanying persons on their tour through Sibiu





Orthodox Cathedral





Baroque Catholic Church





Brukenthal Museum





Baroque Catholic Church

24th	DANUBIA-ADRIA
	Blading
Sej	ptember 21, 2007
"ÎMPĂR I	EATUL ROMANILOR" RESTAURANT
	manu

Country	Number of papers			
Austria	11			
Croatia	6			
the Czech Rep	oublic 23			
Germany	4			
Hungary	9			
Italy	3			
Poland	23			
Romania	35			
Serbia				
Slovenia				
Slovakia	9			
Japan	2			
Estonia	1			
Iran	1			
Total	127			

#### THE TWENTY FIFTH DANUBIA-ADRIA SYMPOSIUM

České Budějovice, the Czech Republic, 2008



A historic and picturesque town of Česki Krumlov (German: Krammau an der Moldau) lies in the deep meandering valley of the Vltava River, 180km south of Prague and about 20km

southwest of Česke Budejovice. According to the legend, the name Krumlov derives from the German name *Krumme Aue*, which means "the crooked meadow". Its Latin name is *Crumlovia* or *Crumlovium*. The population of Krumlov approximates to 15,000. Český Krumlov is

well known for its Krumlov Castle, around which the town was built. It is the second largest castle complex in the Czech Republic and one of the largest in Central Europe. It consists of 40 palaces and buildings and five castle courts. The Castle dates back to 1240. Its Baroque-style renovation and expansion were completed in 1717. Most of the architecture of the Old Town and the Castle dates back to the 14<sup>th</sup> – 17<sup>th</sup> century. The buildings and houses are mostly in Gothic, Renaissance and Baroque style. The entire town was enlisted into the UNESCO World Heritage List in 1992.



Baroque Catholic Church





Baroque Catholic Church

The City of České Budějovice was founded in 1265 by the King Premysl Otakar II at the confluence of Vltava and Malse Rivers. The 13<sup>th</sup>-century Dominican Monastery with the Cloister Church of the Sacrifice of the Virgin Mary harbours important Gothic frescoes discovered only recently. Not far from there, the Renaissance Butchers' Shops (Masné Krámy) provide with a perfect opportunity for

sampling the renowned local cuisine. Another highlight of the City's skyline is the 72-meter high Black Tower, which offers breathtaking views on the City and its surroundings. It was used as a belfry and a watch-tower. The square-shaped central plaza is a home to one of the largest fountains in the country, the Baroque Samson Fountain.





Central Square of České Budějovice

The 25<sup>th</sup> Danubia-Adria Symposium took place at Gomel Hotel near the centre of České Budějovice.







Gomel Hotel

The Technical Visit was organized on Friday, September 26. The Symposium participants could choose to visit either Lipno Dam and the Hydro Power Plant, or Temelin Nuclear Power Plant. The participants also visited *the Budvar Brewery*.

Lipno Dam is a part of the Vltava cascade, situated at its highest point, on the mountain terrain bordering with Šumava National Park and Nature Reserve. The gigantic water

reservoir was built between 1952 and 1959 in the upper part of the Vltava River. Its water poured over a great part of the Vltava basin with several not yet mined peat-bogs. The area of the main reservoir occupies about 4650 ha, and has the volume of 306 million m³; it is seated 726 meters above the sea level. The Hydro Plant consists of an inlet structure, a waste tunnel, and underground facilities with a sloping cargo lift and the control room.





Registration desk







Opening ceremony of the 25th Danubia-Adria Symposium

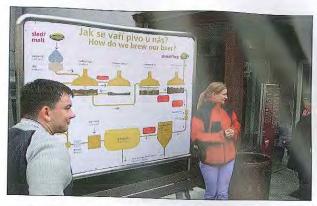
Temelín Nuclear Power Plant is situated about 24 km away from České Budějovice and 5 km from Týn nad Vltavou. The power is generated by two production units equipped with VVER 1000 Type V 320 pressurized-water reactors. The entire primary circuit consisting of the nuclear reactor, four steam-generators, circulation pumps, etc., is located in a fully pressurized reinforced concrete containment, that is to say, in an hermetically closed protective "envelope". The secondary circuit embraces a turbo-generator developing a 1000-MW output. The reactor core contains 163 fuel assemblies, each consisting of 312 fuel and 61 regulating rods. Each steamgenerator generates 1,470 tons of steam per hour, with the output pressure of 6.3 MPa and the temperature of 278.5°C.





Symposium participants

The turbine operates at the rate of 3,000 revolutions per minute; the secondary circuit is also closed and filled with demineralised water. In the steam-generators, the secondary circuit turns water into steam, which is then carried onto the turbine. The power plant has two





**Budvar Brewery** 

such turbines at its disposal, each powering a 1,000-MW alternator, which generates 24-kV power.





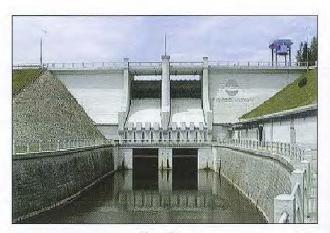
Lipno Hydro Power Plant



The entire turbine setting located at the Temelín Nuclear Power Plant was made by Škoda Pilsen. Downstream from the turbine, the steam condenses back to water on the cool surface of the titanium pipes laid within

Condensation heat gets to be removed from

the three condensers.



Lipno Dam

the steam by the cool water delivered by the tertiary coolant circuit flowing through the condenser pipes. The circuit is then led out into four cooling towers, where the tertiary circuit water is re-cooled using natural air flow. What remains and is released into the atmosphere is a pure water vapour.









Symposium dinner

Country	<b>Number of papers</b>		Scientific Commi	cientific Commietee	
Austria	12	Austria:	J. Eberhardsteiner	(Vienna)	
Croatia	18		W. Eichlseder	(Leoben)	
the Czech Republic	42	Croatia:	I. Alfirevic	(Zagreb)	
Hungary	7		D. Semenski	(Zagreb)	
Italy	5	Czech	S. Holý		
Poland	16	Republic:		(Prague)	
Romania	14		F. Plánička	(Plzen)	
Serbia	5	Hungary:	M. Růžička	(Prague)	
Slovakia	8		L. Borbás	(Budapest)	
Bosnia and Herzego	vina 4	Italy:	F. Cosmi	(Trieste)	
Germany	13		G. Nicoletto	(Parma)	
Japan	1	Poland:	R. Bedzinski	(Wroclaw)	
Korea	1		L. Dietrich	(Warsaw)	
Slovenia	1	Romania:	N. Iliescu	(Bucharest)	
Total	141		I. Păstrav	(Cluj-Napoca)	
Three hundred and fifty authors and co- authors from 15 countries submitted a total		Serbia:	M. Ognjanovic	(Belgrade)	
			M. Zivkovic	(Kragujevac)	
of 141 papers. On top of 14 countries of the		Slovakia:	O. Bokůvka	(Žilina)	
authors' establishment listed above, one co-			P. Palček	(Žilina)	

The first twenty three Danubia-Adria Symposia were running under the official title:

Danubia-Adria Symposium on **Experimental Methods in Solid Mechanics** 

The twenty fourth Symposium was named:

author came from China.

Danubia-Adria Symposium on **Developments in Experimental Mechanics** 

Since the twenty fifth Danubia-Adria Symposium, the Symposia have been running under the official name:

> Danubia-Adria Symposium on Advances in Experimental Mechanics

#### THE TWENTY SIXTH DANUBIA-ADRIA SYMPOSIUM

Leoben, Austria, 2009



Leoben is a city in Styria situated on the loop of the Mur River and having the population of about 15,000. It lies 46km northwest of Graz, at the altitude of 541m above the

sea level. The settlement was first mentioned as Liubina in 982 AD and documented again in 1173 under the name Forum Liuben. The Bohemian King and the Duke of Styria Otakar Il rebuilt Leoben in 1263. Leoben was granted rights to iron trade in 1415. The Treaty of Leoben, concluded precedent to the Treaty of Campo Formio, was signed in Leoben in 1797. Consequent to the Treaty, Austria lost the Austrian Netherlands and Lombardy in exchange for the Venetian territories Dalmatia and Istria. As of today, Leoben is the centre of iron industry and lignite mining, known as the Gateway to the Styrian Iron Road. It is a home to the University of Mining and Metallurgy, founded in 1840.



View on Leoben

The 26<sup>th</sup> Danubia-Adria Symposium on Advances in Experimental Mechanics took place at the Montanuniversität Leoben, situated near the City centre. Aside from its reputation as an urban centre, scientific

meetings' venue and a holiday resort, Leoben – the gate to the *Eisenstrasse* of Styria, is a place of fine tradition.



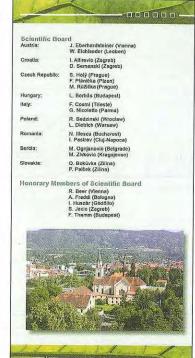
Montanuniversität Leoben

Through many generations Leoben has been recognised for its iron & steel industry. To meet the constantly increasing requirements respective of raw materials, as well as restrictive environmental regulations, it has become necessary to develop totally new synthetic and composite materials. Thanks to the future-oriented developmental strategy, Leoben is now the world's leading centre in this sector.



Montanuniversität Leoben



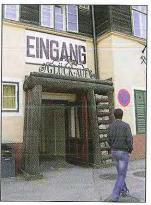




First Announcement and the Symposium Proceedings



Old City Hall and the Main Square



Mine entrance





Presentations