

Coordinator : Pr Stanislas
LML URA CNRS 1441
Bv Paul Langevin, Cité scientifique
F 59655 Villeneuve d'Ascq Cedex

Tel: 33 (0)3 20 33 71 70
Fax: 33 (0)3 20 33 71 69
Email: europiv@univ-lille1.fr
http : www.univ-lille1.fr/pivnet

Final Announcement :

EUROPIV 2 Workshop on Particle Image Velocimetry

(co-organized with Pivnet 2 and ERCOFTAC SIG 32)

Zaragoza (Spain), March the 31st – April the 1st 2003.

This is the final announcement of a single International Workshop which will be held at the University of Zaragoza in Spain on March the 31st and April the 1st 2003.

The first aim of this workshop is to present the main results of the EUROPIV 2 project to the scientific and industrial communities.

Industrial engineers concerned with research and development in Fluid Dynamics will find in this workshop a synthesis of the state of the art of PIV for industrial applications.

EUROPIV 2 is a research program, funded by the European Community which has started in April 2000 and will end in April 2003. The aim of this project was to develop the Particle Image Velocimetry technique in order to make it available as a tool for the European Aeronautical industry. A total of 17 teams did work during these 3 years to improve the method, both for its hardware and software and to demonstrate its interest in large industrial wind tunnels. Details can be found at www.univ-lille1.fr/europiv.

The second aim of this workshop is to favour exchanges and discussions between the EUROPIV 2 consortium and the European PIV community not involved in the project, which is also the objective of both the Pivnet 2 European thematic network and the ERCOFTAC European association for Flow Turbulence and Combustion through its SIG 32 Special Interest Group.

The last aim of the workshop is to have some exchanges also with the PIV community outside Europe.

This workshop is jointly organized by EUROPIV 2, the PIVNET 2 European thematic network and the ERCOFTAC association.

Practical organisation :

The final agenda of the workshop is provided in annex 2.

The local organisation is in charge of Pr Arroyo from University of Zaragoza. All details are given in annex 3. Hotel reservation is at the charge of participants. A list of hotels is also provided in annex 3.

The global organisation is done by Pr Stanislas who is coordinating the EUROPIV 2 project.

The number of participants is limited to 100 including the EUROPIV 2 consortium.

Registration :

[Registration is open until March the 1st 2003.](#)

The registration fee is fixed at 125 Euros. This includes the two lunches, coffee breaks, the dinner on Monday evening, the book and CD-ROM containing the proceedings of the workshop which will be published in September the 1st 2003.

The registration form is provided in annex 1. It should be completed and sent back before March the 1st to :

Prof. Pilar Arroyo
Universidad de Zaragoza
Departamento de Física Aplicada
Facultad de Ciencias
C/ Pedro Cerbuna 12
50009-Zaragoza SPAIN

Tel : 00 34 976 762 441
Fax : 00 34 976 761 233
e-mail arroyo@posta.unizar.es

To expedite the registration process, an early registration desk will be opened on Sunday 30th from 18:30 to 20:00. It will be located in the main entrance of building A (see map 1). Participants are encouraged to show during this time and take their documentation. The registration desk will also be opened on Monday 31st from 8:30 to 9:30 for those arriving late on Sunday.



**A JOINT PROGRAM TO IMPROVE PIV
PERFORMANCE FOR
INDUSTRY AND RESEARCH**

EC PROJECT N°: GRD1-1999-10835

EUROPIV 2 Workshop on Particle Image Velocimetry

(co-organized with Pivnet 2 and ERCOFTAC SIG 32)

Zaragoza (Spain), March the 31st – April the 1st 2003.

Registration form

To be sent to

**Prof. Pilar Arroyo
Universidad de Zaragoza
Departamento de Física Aplicada
Facultad de Ciencias
C/ Pedro Cerbuna 12
50009-Zaragoza SPAIN**

**Tel : 00 34 976 762 441
Fax : 00 34 976 761 233
e-mail arroyo@posta.unizar.es**

Before March the 1st 2003

Name : _____

Title : _____

Organisation : _____

Address : _____

Phone : _____ Fax _____ Email : _____

Date of Arrival : _____

Date of Departure : _____

Hotel : _____

Registration : __ x 125 Euros

Sunday tour : __ x 40 Euros

Total : _____ Euros

Payment : Credit Card : _ Bank transfer : _ Cash : _

Payment of the registration fee should preferably be done in advance, before March 1st.

Payments can be made by **bank transfer** (adding bank charges) to the following account

Bank name: Ibercaja

IBAN: ES60 2085 0111 7403 3027 8967

SWIFT Code: CAZRES2Z

Branch: Urbana 10

Address: Fernando el Católico, 35 50006 – Zaragoza SPAIN

(Please, **send copy of bank transfer by fax**)

Payment with **credit card** (VISA, MasterCard or Euro6000) can be made in advance (preferable) or on site. For the advanced payment, please send the following details by **e-mail or FAX and the original signed copy by mail.**

Type of card:

Card number:

Cardholder name:

Expiration date:

Amount:

Concept: Registration for the Europiv2 workshop in Zaragoza

Date and signature

Payment by **cash** would be also possible at the workshop but should be limited to a minimum.



**A JOINT PROGRAM TO IMPROVE PIV
PERFORMANCE FOR
INDUSTRY AND RESEARCH**

EC PROJECT N°: GRD1-1999-10835



Coordinator : Pr Stanislas
LML URA CNRS 1441
Bv Paul Langevin, Cité scientifique
F 59655 Villeneuve d'Ascq Cedex

Tel: 33 (0)3 20 33 71 70
Fax: 33 (0)3 20 33 71 69
Email: europiv@univ-lille1.fr
http : www.univ-lille1.fr/pivnet

EUROPIV 2 Workshop on Particle Image Velocimetry

(co-organized with Pivnet 2 and ERCOFTAC SIG 32)

Zaragoza (Spain), March the 31st – April the 1st 2003.

Final Agenda

Monday March the 31st

9h00	Welcome address	J. Kompenhans
9h15	Invited lecture : Particle Image Velocimetry Studies of Solid Rocket Motors R. Adrian, , B.J. Balakumar, Z. Deng	
9h45	Session 1: Aeronautics	chairman: J. Kompenhans
	Detailed characterisation, using PIV, of the flow around an aerofoil in a high-lift configuration.	A. Arnott, K.P. Neitzke, J. Agocs, B. Sammler, G. Schneider, A. Schroeder.
	Comparison of numerical simulations of the flow around an airfoil in high lift configuration with PIV experimental results.	D. Tran
	Characterization of the flowfield around a transonic wing by PIV.	A. Gilliot, J.C. Monnier, A. Arnott, J. Agocs and C. Fatien
	Study of the wake vortices of a transport aircraft model with stereoscopic PIV.	H.P. Veerman

11h05	Coffee break	
11h30	Session 2: Advanced algorithms	chairman: J. Westerweel
	The local field correction advanced PIV algorithm	A.Lecuona, J. Nogueira
	Development and assessment of non isotropic resolution in PIV.	F. Scarano
	Advanced PIV algorithms with window deformation. Validation with synthetic images of turbulent flow	B. Lecordier, M. Trinité
	Comparison of correlation PIV and hybrid PIV-PTV algorithm in vortical flows.	A.Stitou, M.L. Riethmuller
12h50	Lunch	
14h30	Session 3 : PIV Accuracy	chairman: K. Okamoto
	The EUROPIV Synthetic Image Generator.	J. Westerweel, B. Lecordier, J. Nogueira
	Characterization of different PIV algorithms using the Europiv SIG and real images from a turbulent boundary layer.	B. Miliat, J.M. Foucaut, N. Pérenne, M. Stanislas
	Assessment of vorticity with advanced PIV techniques.	A. Lecuona, J. Nogueira
	Remarks on the spatial resolution and turbulence measurement with PIV.	P. Saarenrinne
15h50	Coffee break	
16h20	Session 4 : Applications	chairman: M. Riethmuller
	Measurements of Turbulent Flow Transition in a Pipe using Stereo PIV.	J. Westerweel, Petracci, Van Doorne
	Investigation of instationary effects in transonic turbomachinery flows using Particle Image Velocimetry.	J. Woisetschläger
	Turbulent bubbly flow measurements in a mixing vessel with PIV.	M. Honkanen , P. Saarenrinne
	Proposal for Netcdf implementation for planar velocimetry data.	C. Willert
17h 40	End of day 1	

Tuesday April the 1st

9h15	Invited lecture :	Dynamic PIV, a strong tool for transient analysis K. Okamoto	
9h45	Session 5 : Turbulence & PTV		chairman: A. Lecuona
	PIV measurements of turbulent decay behind a grid.		De Gregorio F., Avallone G., Romano G.P.
	PIV and PTV for the characterization of turbulent channel flow: comparison of experimental and simulation approaches.		M. Moroni, J. Nogueira, G.P. Romano, A. Cenedese, A. Lecuona
	Photogrammetric Particle-Image Velocimetry.		A. Schimpf
	Application of PIV to characterise the flow-phenomena of a heavy-duty cylinder head on a stationary flowbench.		E. Doosje
11h05	Coffee break		
11h30	Session 6: Holography & ESPI		chairman: R. Adrian
	Advances in light-in-flight HPIV for the study of wind tunnel flows.		S.F. Herrmann, K. D. Hinsch.
	Holographic PIV for large scale facilities.		H. Royer, N. Pérenne, M. Stanislas
	Comparison between PIV&ESPI and stereo PIV on the measurement of 3-C velocity fields.		J. Lobera, M.P. Arroyo, N. Perenne and M. Stanislas
	From ESPI to Digital Image Plane Holography (DIPH): requirements, possibilities and limitations for velocity measurements in a 3-D volume.		J. Lobera, N. Andrés and M.P. Arroyo
12h50	Lunch		
14h30	Session 7: Stereoscopic PIV		chairman: F. Scarano
	Study of the accuracy of different stereoscopic reconstruction algorithms.		N. Pérenne
	Self-calibration of a Stereoscopic PIV system in Scheimpflug condition.		T. Fournel, T. Coudert,
	3D-PIV measurements near the wall.		D. Calluau, L.David
	Particles generation for PIV in air flows		C. Kähler
15h50	Coffee break		
16h20	Round table discussion		chairman: J. Kompenhans
17h20	EC comments		J. Prieur
17h30	Closing remarks		M. Stanislas
17h40	End of workshop		



**A JOINT PROGRAM TO IMPROVE PIV
PERFORMANCE FOR
INDUSTRY AND RESEARCH**

EC PROJECT N°: GRD1-1999-10835

EUROPIV 2 Workshop on Particle Image Velocimetry

(co-organized with Pivnet 2 and ERCOFTAC SIG 32)

Zaragoza (Spain), March the 31st – April the 1st 2003.

Practical information

Location:

Zaragoza, with a population near 700.000 inhabitants, is the fifth biggest city in Spain and an important industrial center. It is located in the Ebro river valley, equidistant from Madrid, Barcelona, Valencia or Bilbao (300 km). Zaragoza is a 2000 years old city with interesting museums and beautiful architecture including an arabic castle (Aljaferia) and two famous cathedrals (El Pilar and La Seo). The University of Zaragoza, one of the oldest in Spain, was established in the XVI century.

The Europiv2 Workshop will take place at the Faculty of Sciences of the Universidad de Zaragoza (purple buildings A-D on map 1). The sessions will be held in the Physics and Chemistry building (building A on map 1). The University of Zaragoza has several campuses not only in Zaragoza but also in Teruel and in Huesca. The Faculty of Sciences is located in Zaragoza in the campus San Francisco (number 1 in map 2).

The campus San Francisco is at about 30 minutes walking from the city center, which is close to the Ebro river (map 3). It can also be reached by public bus lines 30 and 40, that run very frequently. They can be taken at Plaza San Francisco and left at Plaza de España. A bus ticket is required for each trip. Tickets are bought directly to the driver at the bus entrance. There is a single price of 0.60 Euros, irrespective of the distance. More information can be found at www.tuzsa.es

Lunch will take place at the Colegio Mayor Pedro Cerbuna (building 14 in map 1). The dinner on Monday evening will take place at Restaurante el Fuelle (map 3) in the city center, where some traditional food from the region will be served.

Tourist excursion on sunday:

For those arriving on saturday, a tourist trip (map 4) is being organized on sunday. The trip will last from 9:00 until 18:30 and it will allow you to visit a monastery carved under the mountains in San Juan de la Peña (www.monasteriosanjuan.com) and a castle in Loarre (www.castillodeloarre.com). You will also visit Jaca (www.valledelaron.com; www.jaca.com), the door to the Pyrenees, where lunch will be arranged for. This excursion, being optional, is not included in the registration. The price for the excursion is 40 Euros,

including the bus, a tourist guide, the entrance fees and the lunch. The trip will be done only if a minimum participation of 30 people is reached. Anyone possibly interested in this excursion should send an e-mail to Pilar Arroyo (arroyo@posta.unizar.es) ***as soon as possible*** so that an early decision can be made on the excursion and payment can be conveniently done at the same time as the advanced registration.

How to reach Zaragoza:

By plane – there are a few direct flights from London, Paris and Frankfurt. You can also fly through Barcelona or Madrid.

By train – Zaragoza is well connected with Madrid and Barcelona by train. The trip takes about 3 hours and a half in the TALGO or INTERCITY trains. By January 2003, high speed trains (AVE) are planned to operate between Madrid and Zaragoza, shortening this trip to 1h15min. There are also daily night trains connecting Madrid or Barcelona with Paris, Lisbon, Milan and Zurich.

Information about timetables and prices can be found at the spanish railways web page (www.renfe.es).

There are good connections between the airports at Madrid or Barcelona with the train stations (Madrid-Chamartin and Barcelona-Sants, respectively) by public transportation.

By car – Zaragoza can be reached from Madrid or Barcelona in about 3h. There is a toll motorway from Barcelona and a free motorway from Madrid.

Accommodation:

A number of rooms have been reserved, at special prices, for the participants in the Europiv2 Workshop in four selected hotels (see map 3 for hotel location). Some useful information on these hotels, which are the closest to the workshop location, is included here. Reservation has to be made directly by the participants, using the **reservation code** Europiv2.

Other hotels, shown in map 3, are also listed here

List of selected hotels (All prices include breakfast. 7% VAT to be added.)

**** Hotel Green Romareda

C/ Asín y Palacios, 11 50009 – Zaragoza

Tel. +34 976 351100 FAX +34 976 351950 e-mail: romareda@green-hoteles.com

www.hotelgreenromareda.com

Single room: 58 Euros Double room: 78 Euros

**** Hotel Zenit Don Yo

C/ Bruil 4-6 50001 – Zaragoza

Tel. +34 976 226741 FAX. +34 976 219956 e-mail: hoteldonyo@zenithoteles.com

www.zenithoteles.com

Single room: 61.85 Euros Double room: 72.58 Euros

*** Hotel Zaragoza Royal
Arzobispo Domenech, 4 50006 – Zaragoza
Tel. +34 976 214600 FAX. +34 976 220359 e-mail: zaragozaroyal@husa.es
www.husa.es
Single room: 58 Euros Double room: 73 Euros

*** Hotel Gran Via
Gran Vía, 38 50005 – Zaragoza
Tel. +34 976 229213 FAX. +34 976 220707 e-mail: reservas@granviahotel.com
www.granviahotel.com
Single room: 55 Euros Double room: 71 Euros

Other hotels

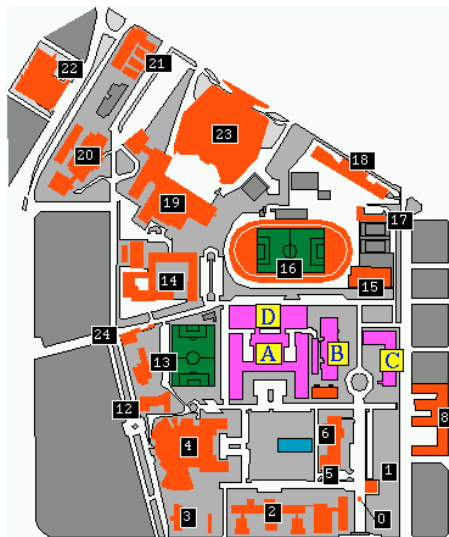
***** Hotel Palafox
C/ Casa Jiménez s/n 50004- Zaragoza
Tel. +34 976 237700 FAX. +34 976 234705 e-mail: palafox@teleline.es
www.palafoxhoteles.com

**** Hotel Goya
C/ Cinco de Marzo, 5 50004 – Zaragoza
Tel. +34 976 229331 FAX. +34 976 232154 e-mail: hgoya@teleline.es
www.palafoxhoteles.com

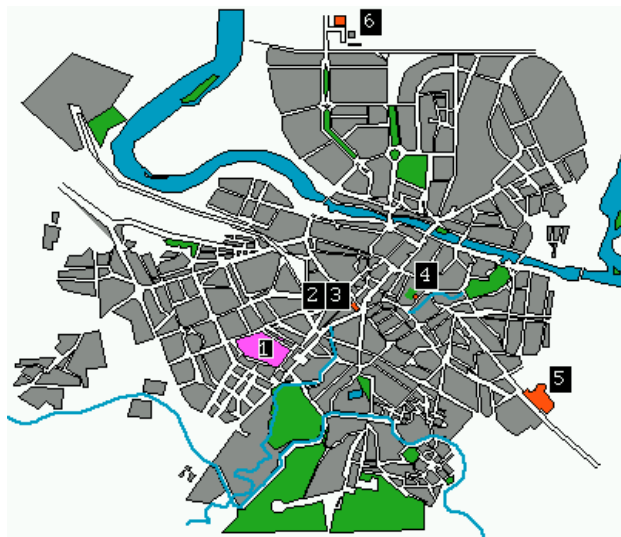
*** Hotel Conquistador
Hernán Cortés, 21 50005 – Zaragoza
Tel. +34 976 214988 FAX. +34 976 214988

***Hotel Paris
Pedro M^a Ric, 14 50008 – Zaragoza
Tel. +34 976 236537 FAX. +34 976 225397 e-mail: hparis@teleline.es

Maps



Map 1 – Campus San Francisco



Map 2 – Zaragoza campus

