SECOND BULLETIN

ICFA'95 SCHOOL

INSTRUMENTATION IN
ELEMENTARY PARTICLE PHYSICS

Ljubljana, Slovenia

July 3-15, 1995

Organized by

ICFA Panel on
Instrumentation Innovation and Development

and

Jožef Stefan Institute, Ljubljana

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Introduction to ICFA'95

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Organization

ICFA Panel on
Instrumentation Innovation and
Development
&
Jožef Stefan Institute,
Ljubljana

Date

July 3 - 15, 1995

Language

English

Sponsors

- European Commission
- Slovenian Ministry of Science and Technology
- Jožef Stefan Institute, Ljubljana
- DOE, Washington
- NSF, Washington
- CERN, Geneva
- DESY, Hamburg
- ICTP, Trieste
- INFN, Italy
- IN2P3, France
- LeCroy

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ICFA'95 Programme

Committees

Directors of the School

P. Križan (director)	Univ. Ljubljana, Slovenia
M. Sheaff (codirector)	Univ. Wisconsin, USA
A. Cattai (codirector)	CERN, Switzerland

International Organizing Committee

T. Ekelöf (chairman)	Univ. Uppsala, Sweden
D. Anderson	Fermilab, USA
A. Cattai	CERN, Switzerland
I.A. Golutvin	JINR, Russia
P. Križan	Univ. Ljubljana, Slovenia
S. Majewski	CEBAF, USA
M. Mikuž	Univ. Ljubljana, Slovenia
D.R. Nygren	LBL, USA
M. Sheaff	Univ. Wisconsin, USA
V. Sidorov	INP, Russia
A.H. Walenta	Univ. Siegen, Germany
D. Zavrtanik	J. Stefan Inst., Slovenia

Local Organizing Committee

P. Križan (chairman)	Univ. Ljubljana
V. Cindro	J. Stefan Institute
D. Korbar	J. Stefan Institute
M. Mikuž	Univ. Ljubljana
A. Stanovnik	Univ. Ljubljana
M. Starič	J. Stefan Institute

School Programme

Review Talks

P. Zerwas (DESY)
Perspectives in High Energy Physics

D. Anderson (Fermilab)
Inorganic Scintillators

S. Majewski (CEBAF)
Scintillating Fibres

E. Iarocci (INFN, Frascati)
New Ideas, Exotic Detectors

J. Elias (Fermilab)
Photo Detectors

P. Križan (Univ.Ljubljana)
Fixed Target B-Physics Experiments

M. Mikuž (Univ.Ljubljana)
Interferometry in the K system

G. Giacommelli (Univ.Bologna)
Astroparticle Physics

A.H. Walenta (Univ.Siegen)
Medical Applications

H. Albrecht (DESY)
Physics analysis tools

M. Regler (HEPHY, Vienna)
Filtering Methods
in Track and Vertex Reconstruction

Lecture Courses

G.F. Knoll (Univ.Michigan)
Physics of Particle Detection

W. Blum (CERN)
Gaseous Detectors

T. Ypsilantis (Coll.de France)
Particle Identification

C. Fabjan (CERN)
Calorimetry

C.J.S. Damerell (RAL)
Silicon Detectors

V. Radeka (BNL)
Signal Processing and Data Acquisition

P. Jenni (CERN)
Strategies for Current and Future
Collider Detectors

Laboratory Courses

M. Starič (Univ.Ljubljana)
Multiwire Proportional Chambers

P. Weilhammer (CERN)
Silicon Detectors and Signal Processing

R. Bellazzini (Univ.Pisa)
Microstrip and Microgap Gas Chambers

M. Atac (Fermilab)
Scintillating Fibres

G. Hall (Imp.College)
Analog and Digital Circuits

R. Piercey (Mississippi State)
Data Acquisition

Y. Zanevsky (JINR, Dubna)
X-ray imaging

Tentative Time Schedule

Monday, July 3, 1995

- 14.00 - 22.00 Registration
- 16.00 - 18.00 Welcome reception

Tuesday, July 4, 1995

- 9.00 Welcome Addresses
- 9.30 Perspectives in High Energy Physics
- 11.00 Physics of Particle Detection - 1/2
- 12.00 Silicon Detectors - 1/3
- 13.00 Lunch
- 14.30 Laboratory 1

Wednesday, July 5, 1995

- 9.00 Physics of Part. Detection - 2/2
- 10.15 Silicon Detectors - 2/3
- 11.30 Particle Identification - 1/2
- 13.00 Lunch
- 14.30 Laboratory 2

Thursday, July 6, 1995

- 9.00 Calorimetry - 1/3
- 10.15 Silicon Detectors - 3/3
- 11.30 Particle Identification - 2/2
- 13.00 Lunch
- 14.30 Laboratory 3

Friday, July 7, 1995

- 9.00 Calorimetry - 2/3
- 10.15 Signal Processing and DAQ - 1/2
- 11.30 Scintillating fibres
- 13.00 Lunch
- 14.30 Laboratory 4

Saturday, July 8, 1995

- 9.00 Calorimetry - 3/3
- 10.15 Signal Processing and DAQ - 2/2
- 11.30 Filtering methods in track and vertex recons.
- 13.00 Lunch

Sunday, July 9, 1995,

Whole Day Excursion

Monday, July 10, 1995

- 9.00 Gaseous Detectors - 1/3
- 10.15 Photo Detectors
- 11.30 Astroparticle physics
- 13.00 Lunch
- 14.30 Laboratory 5

Tuesday, July 11, 1995

- 9.00 Gaseous Detectors - 2/3
- 10.15 Medical Applications
- 11.30 Inorganic scintillators
- 13.00 Lunch
- 14.30 Laboratory 6

Wednesday, July 12, 1995

- 9.00 Gaseous Detectors - 3/3
- 10.15 Laboratory 7
- 14.00 Lunch
- 15.00 Laboratory 8

Thursday, July 13, 1995

- 9.00 Strategies for coll. exp. - 1/2
- 10.15 Physics analysis tools
- 11.30 New ideas, exotic detectors
- 13.00 Lunch
- 14.30 Poster session
- 16.00 Barbecue

Friday, July 14, 1995

- 9.00 Strategies for coll. exp. - 2/2
- 10.15 Interferometry in the K system
- 11.30 Precision B Physics exp.
- 13.00 Lunch
- 14.30 SCHOOL SUMMARY

Saturday, July 15, 1995,
Departure

Poster Session

A poster session will be organized for students to present their work. The interested students are encouraged to contact organizers in advance.

Social Activities Programme

Welcome reception
Monday, July 3 at 16^{00}, J. Stefan Institute, self service snacks and drinks. Short presentation of the institute and the school programme.

Excursion
Sunday, July 9, whole day. Two possibilities are offered:

- *Visit to Postojna Cave and Lipica*
  Departure after breakfast at 8^{00} in front of the institute. One hour drive by bus to Postojna, visit to the Postojna cave, one of the world's jewels of nature. After the visit, light lunch. Drive to Lipica, visit to the stables and programme in Lipica Stud-farm (Lipizzaner). Dinner in Kobjeglava, a typical old Karst village, with local specialities, "Teran" wine and "pršut", air-dried ham.

- *Mountain Trekking in the Bohinj Highlands*
  Departure after early breakfast at 8^{00} in front of the institute. Two hours drive with vans via Bohinj to the starting highland "Planina blato" (1147m). One hour walk to the next highland "Planina pri jezeru" (1450m), with a beautiful small lake and a mountain hut. Food and drinks available. From "Planina pri jezeru" next one hour walk to the most picturesque highland "Planina v Lazu" (1560m). Way back over "Planina Dedno polje" to "Planina pri jezeru", one hour and a half. From here to the next highland, "Planina Vogar" (1053m), one hour and a half, where the mountain hut is situated on the top of the rock wall rising from lake Bohinj. One hour and a half walk to "Hudičev most" (devil's bridge) and "Stara fužina" (600m), alpine village near lake Bohinj. After short drive by bus, dinner with Slovenian food and wine. We recommend good trekking shoes, a rucksack with clothes to change and a warm windjacket.

Barbecue
Thursday, July 13, at 16^{00}, IJS Reactor Centre, Podgorica. Selected grill specialities, wine of the region as well as large quantities of beer will surely contribute a pleasant atmosphere for students and lecturers to get together on a less formal basis.

General Information

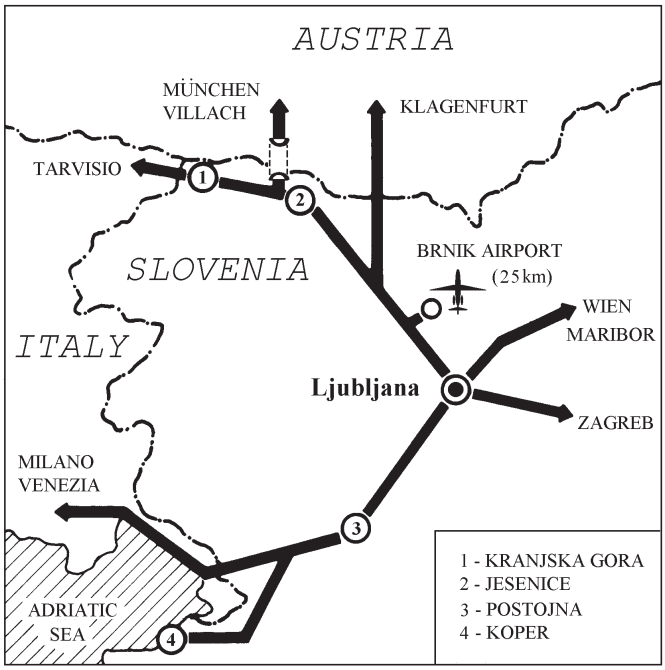
Location of Ljubljana

Ljubljana is the political and cultural centre and the capital of Slovenia. Ljubljana lies at the intersection of the traffic highways from Northern Europe to the Adriatic and from Western Europe to the East. Some relevant distances:

BRNIK-LJUBLJANA AIRPORT	25 km
POSTOJNA	55 km
KRANJSKA GORA	85 km
KOPER	120 km
KLAGENFURT	85 km
TRIESTE	95 km
GRAZ	205 km
VENEZIA (Venice)	205 km
WIEN (Vienna)	390 km
MÜNCHEN (Munich)	440 km
BUDAPEST	490 km

BASIC FACTS ABOUT LJUBLJANA

Inhabitants	340000
Altitude	298 m
Area covered	903 km^2
Geographical loc.(latitude)	46^0
Geographical loc.(longitude)	14^0
Average day temperature (July)	20^0C



BS - Central bus and train station. Five minutes walk from here to the nearest station of the city bus No.6 (No.1 on the picture). Taxis also available.

Arriving in Ljubljana by Air

From BRNIK-LJUBLJANA International Airport, located 25 km from Ljubljana, connected by regular bus service. Taxis also available at approximate price 50 CHF.

Time Table for Ljubljana Airport, March 26 to October 28, 1995

Flight from	Days	Depart.	Arrival in Ljubljana	Flight No.	Aircraft
BARCELONA (BCN)	–,–,–,–,–,–,S	10.40	12.25	JP 1693	D93
COPENHAGEN (CPH)	–,–,–,–,–,S,–	10.35	12.25	JP 1675	D93
FRANKFURT (FRA)	M,T,W,T,F,–,S	11.30	12.40	JPLH 1617	320
	M,T,W,T,F,S,S	17.25	18.35	JPLH 1615	320
GLASGOW (GLA)	–,–,–,–,–,S,–	21.40	01.10	JP 1625	D93
ISTANBUL (IST)	–,–,–,–,–,–,S	23.15	00.35	JP 1655	320
	M,T,W,T,F,S,S	04.10	05.30	JP 1659	D93
LEIPZIG (LEJ)	–,–,–,–,–,S,–	08.50	10.10	JP 1609	320
LONDON HEATHROW (LHR)	–,–,–,–,F,–,–	14.45	17.40	JP 1627	320
	–,–,W,–,–,S,S	15.30	18.25	JP 1627	320
	–,T,–,–,–,–,–	20.00	22.55	JP 1627	320
MANCHESTER (MAN)	–,–,–,–,–,S,–	09.30	12.40	JP 1629	320
MOSCOW (SVO)	M,–,–,–,F,–,–	09.20	10.45	SU 163	TU3
	–,T,–,T,–,–,–	13.20	14.30	JP 1713	320
	–,–,–,–,–,–,S	21.30	22.40	JP 1713	320
MUNICH (MUC)	M,–,W,–,F,–,–	11.15	12.25	JP 1603	DH7
	–,–,–,–,–,S,–	16.45	17.55	JP 1603	DH7
	–,T,–,T,–,–,S	20.30	21.40	JP 1603	DH7
PARIS CH.DE GAULLE (CDG)	–,–,–,–,F,–,–	10.40	12.20	AFJP 2792	320
	M,–,–,–,–,–,–	10.50	12.30	AFJP 2792	320
	–,–,W,–,–,–,S	20.50	22.30	AFJP 2792	320
PRAGUE (PRG)	M,–,–,–,–,–,–	09.35	11.15	JP 1683	DH7
	–,–,–,–,F,–,–	20.40	22.20	JP 1683	DH7
ROME (FCO)	–,T,–,–,F,–,–	10.40	13.05	JP 1635	DH7
	–,–,–,–,–,–,S	20.25	22.50	JP 1635	DH7
SKOPJE (SKP)	M,T,W,T,F,S,S	15.45	17.25	JP 1149	320
TIRANA (TIA)	M,–,–,–,–,–,S	06.00	07.40	JP 1707	D93
	M,T,W,T,–,–,–	15.50	17.30	JP 1705	D93
VIENNA (VIE)	–,–,–,–,–,–,S	10.30	11.45	JP 1689	DH7
	M,T,W,T,F,S,–,S	14.50	15.50	OSVO 835	F50
	M,–,W,–,F,–,–	19.55	21.10	JP 1689	DH7
ZURICH (ZRH)	–,–,–,–,–,S,–	09.00	10.00	JP 1663	D93
	M,–,W,–,F,–,S	11.15	12.15	JP 1663	D93
	M,T,W,T,F,–,S	13.25	14.40	SRLX 6450	AR8
	–,–,–,–,–,S,–	13.25	14.50	SRLX 6450	S20

AF - Air France, **JP** - Adria Airways, **LH** - Lufthansa, **LX** - Crossair, **SR** - Swissair, **OS** - Austrian Airlines, **SU** - Aeroflot, **VO** - Tyrolean Airways

DH7 - DE Havilland Canada DHC7, **F50** - Fokker F50, **D93** - McDonnell Douglas DC9, **TU3** - Tupolev TU134, **AR8** - Aerospace Avroliner RJ85, **S20** - Saab 2000, **320** - Airbus A320

Time Table for Bus Service from Ljubljana Airport

Bus to	Days	Departure from Airport at
LJUBLJANA	M,T,W,T,F,–,–	5.00 – 20.00 every hour
	–,–,–,–,–,S,S	7.00, 10.00 – 20.00 every 2 hours

There is an additional bus after every arrival of the **ADRIA AIRWAYS (JP)** flight.

Accommodation for Students

Pre-reservation of rooms has been made in student hostel, less than 300 metres from the J. Stefan Institute. Rooms are with two beds, common bathroom and kitchen. Price is approximately 22 CHF per person per day including breakfast and dinner. Lunch will be organised in the self service restaurant at the institute for approximately 5 CHF per meal. Payment for accommodation should be made directly at the hostel in cash. Credit cards are not accepted. Deposit for reservation is not requested. Please, fill in the **Accommodation Booking Form** and send it by fax to the school office. Individual arrangements are possible in more then 20 hotels, motels and bungalows in Ljubljana, in private rooms or camping grounds. Tourist Information by Phone: +386-61-215 412 and Fax: +386-61-222 115.

Students arriving on Sunday, July 2^{nd}, may obtain detailed information about the location of the student hostel at the entrance reception desk of J. Stefan Institute.

Currency

Payments are in Slovenian Tolars. Hotels and most of shops accept Credit Cards. Other common currencies are accepted at the exchange bureaus everywhere in the town or in hotels at the corresponding bank exchange rate of the day (100 Tolars $\approx$ 1 Swiss Frank). The difference between selling and buying rates is approximately 5%.

Visas

It is each participant's responsibility to comply with any visa requirements to enter Slovenia. The Conference Office can supply a letter of Registration for Consular Officials. Please, do not hesitate to contact us.

WWW Information

General information about Slovenia and the organizing Institute can be found on the World Wide Web server at *http://www.ijs.si*. From there you can reach up-to-date information about the ICFA'95 School. Direct access through WWW is available by selecting *http://merlot.ijs.si/icfa/icfa.html* from the HTTP server at the Particle Physics Department of the Jožef Stefan Institute.