

# 17<sup>th</sup> SPIG

17<sup>th</sup> Summer School and International  
Symposium on the Physics of Ionized Gases

August 29<sup>th</sup> - September 1<sup>st</sup>, 1994, Belgrade, Yugoslavia



## CONTRIBUTED PAPERS & ABSTRACTS OF INVITED LECTURES AND PROGRESS REPORTS

Editors:

B. Marinković and Z. Petrović



Institute of Physics  
Belgrade, Yugoslavia

CONTRIBUTED PAPERS & ABSTRACTS  
OF INVITED LECTURES AND PROGRESS REPORTS  
of the  
17<sup>th</sup> SUMMER SCHOOL and INTERNATIONAL SYMPOSIUM  
on the **PHYSICS OF IONIZED GASES**

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Publisher:

*Institute of Physics*

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ISBN 86-82441-01-2

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Printed by:

Institute of Nuclear Sciences "Vinca"

P.O. Box 522. 11001 Belgrade, Yugoslavia.

Phone: (11) 45-82-22 ext. 500

Copies: 250 , August 1994

## PREFACE

This book contains the contributed papers and abstracts of the invited lectures and progress reports presented at the 17<sup>th</sup> Summer School and International Symposium on the Physics of Ionized Gases - SPIG '94. This conference was held in Belgrade, Yugoslavia from August 29<sup>th</sup> to September 1<sup>st</sup>, 1994.

This conference covers the related fields of atomic and molecular collisions, particle and laser beam interaction with solids, gas discharge and plasma physics. The basic idea is to put together specialists in these fields and especially to allow younger scientists in the field to present their work in front of an international audience. The Scientific Committee hopes that this format of conference will in future attract interest of the colleagues from the neighboring countries.

The basic program of the conference has been defined by the Scientific Committee which also reviewed the contributed papers.

This year the Conference has been organized by the Institute of Physics, University of Belgrade and the Organizing Committee is grateful to the staff of the Institute for their help in preparation. Special gratitude is due to the Ministry of Science and Technology of the Republic of Serbia and to the sponsors, Yugoslav Airlines and MTT INFIZ who provided the necessary funds and services.

The Scientific and Organizing Committees believe that this conference manages to maintain the high international level of contributed papers and invited speakers in accordance with SPIG's 34 year long tradition.

Finally we would like to thank all the invited speakers and the participants for taking part in this year's SPIG, to wish them to have a pleasant stay in Belgrade and to gain some momentum and ideas for the future research.

B. Marinković

Z. Petrović

Beograd August 1994.



## ACKNOWLEDGMENTS

17<sup>th</sup> SUMMER SCHOOL and INTERNATIONAL SYMPOSIUM  
on the PHYSICS OF IONIZED GASES (17<sup>th</sup> SPIG)

*was organized by*



Institute of Physics, Pregrevica 118, 11080 Belgrade, Yugoslavia

*under the auspices of*

The Physical Society of Serbia

The Union of Mathematicians, Physicist and Astronomers of Yugoslavia

The Ministry of Science and Technology of the Republic of Serbia

The Ministry of Science, Technology and Development of Yugoslavia

*and supported by*

The Ministry of Science and Technology of the Republic of Serbia

*Sponsors:*

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# 17<sup>th</sup> SPIG

## Scientific Programme:

### Section 1. ATOMIC COLLISION PROCESSES

- 1.1. Electron and Photon Collisions with Atomic Particles
- 1.2. Heavy Particle and Photon Interactions
- 1.3. Swarm and Transport Properties

### Section 2. PARTICLE AND LASER BEAM INTERACTION WITH SOLIDS

- 2.1. Atomic Collisions in Solids
- 2.2. Sputtering and Deposition
- 2.3. Laser and Plasma Interaction with Surfaces

### Section 3. LOW TEMPERATURE PLASMA

- 3.1. Plasma Spectroscopy and Other Diagnostic Methods
- 3.2. Gas Discharges
- 3.3. Plasma Applications and Devices

### Section 4. GENERAL PLASMAS

- 4.1. High Temperature Plasmas
- 4.2. Astrophysical Plasmas
- 4.3. Collective Phenomena

CIP - Каталогизација у публикацији  
Народна библиотека Србије, Београд

537.56(063)(082)

SUMMER School and International Symposium on  
the Physics of Ionised Gases (17 ; 1994 ;  
Belgrade)

Contributed Papers and Abstracts of  
Invited Lectures and Progress Reports / 17th  
SPIG - 17th Summer School and International  
Symposium on the Physics of Ionised Gases,  
August 29th - September 1st, 1994, Belgrade,  
Yugoslavia ; editors B. Marinkovic and Z.

Petrovic. - Belgrade : Institute of Physics,  
1994 (Belgrade : Institute of Nuclear  
Sciences "Vinča"). - XVII, 396, 5 str. :  
ilustr. ; 24 cm

Tiraž 250. - Bibliografija uz većinu radova.  
ISBN 86-82441-01-2

539.186.2(063)(082) 539.121.7(063)(082)  
533.9(063)(082)

а) Гасови, јонизовани - Зборници б) Атоми  
- Елементарне честице - Интеракција -  
Зборници с) Плазма - Зборници  
ID=28741132



## CONFERENCE PROGRAMME

**Monday, 29<sup>th</sup> August**

8<sup>00</sup> - 10<sup>00</sup> Registration

10<sup>00</sup> - 10<sup>30</sup> **OPENING SESSION** - Annex B

Chairman: *Z. Petrović*

10<sup>30</sup> - 11<sup>15</sup> **R.S. Pease**, Culham Laboratory, UK

11<sup>15</sup> - 11<sup>30</sup> Coffee Break

Chairman: *N. Konjević*

11<sup>30</sup> - 12<sup>15</sup> **T. Makabe**, Keio University, Japan

12<sup>15</sup> - 13<sup>00</sup> **E.A. Solov'ev**, St. Petersburg University, Russia

13<sup>00</sup> - 14<sup>00</sup> Scientific Committee Meeting

13<sup>00</sup> - 16<sup>30</sup> Lunch

### PARALLEL SESSIONS

#### Annex B

#### Briefing room

	Chairman: <i>B. Vujičić</i>	Chairman: <i>R. Webb</i>
16 <sup>30</sup> - 17 <sup>00</sup>	<b>B. Jelenković</b> , Institute of Physics, YU	<b>J. Vranješ</b> , Institute of Physics, YU
17 <sup>00</sup> - 17 <sup>30</sup>	<b>N.V. Novaković</b> , University of Niš	<b>J. Vukančić</b> , NI "Vinča", YU

17<sup>30</sup> Coffee

17<sup>30</sup> - 19<sup>30</sup> **POSTER SESSIONS**

Section 1.	Section 2.	Section 3.	Section 4.
1.1 - 1.6	2.1 - 2.6	3.1 - 3.11	4.1 - 4.7



## Tuesday, 30<sup>th</sup> August

Chairman: *M. Dimitrijević*

9<sup>00</sup> - 9<sup>45</sup> **M. Perić**, University of Belgrade, YU

9<sup>45</sup> - 10<sup>15</sup> **E. Gogolides**, NCSR "Democritos", Greece

10<sup>15</sup> - 11<sup>00</sup> Coffee Break

Chairman: *M. Milosavljević*

11<sup>00</sup> - 11<sup>45</sup> **R. Webb**, University of Surrey, UK

11<sup>45</sup> - 12<sup>30</sup> **A. Barborica**, University of Bucharest, Romania

12<sup>30</sup> - 16<sup>30</sup> Lunch

### PARALLEL SESSIONS

#### Annex B

#### Briefing room

	Chairman: <i>M. Škorić</i>	Chairman: <i>A. Mihajlov</i>
16 <sup>30</sup> - 17 <sup>00</sup>	<b>V. Čadež</b> , Institute of Physics, YU	<b>V. Lj. Marković</b> , University of Niš, YU
17 <sup>00</sup> - 17 <sup>30</sup>	<b>D.Ž. Gajić</b> , University of Niš, YU	<b>A. Klucharev</b> , St. Petersburg Univ., Russia

17<sup>30</sup> Coffee

### 17<sup>30</sup> - 19<sup>30</sup> POSTER SESSIONS

Section 1.	Section 2.	Section 3.	Section 4.
1.7 - 1.14	2.7 - 2.10	3.12 - 3.20	4.8 - 4.16

20<sup>00</sup> Reception by THE CITY COUNCIL OF BELGRADE

## **Wednesday, 31<sup>st</sup> August**

Chairman: *T. Grozdanov*

9<sup>00</sup> - 9<sup>45</sup> **D.Ž. Belkić**, Institute of Physics, YU

9<sup>45</sup> - 10<sup>15</sup> **C. Jeynes**, University of Surrey, UK

10<sup>15</sup> - 10<sup>45</sup> **R.S. Pease**, Culham Laboratory, UK

10<sup>45</sup> - 11<sup>30</sup> Coffee Break

Chairman: *J. Purić*

11<sup>30</sup> - 12<sup>00</sup> **D.S. Karpuzov**, Bulg. Acad. Sci., Bulgaria

12<sup>00</sup> - 12<sup>30</sup> **D. Djordjević**, Institute of Physics, YU

12<sup>30</sup> - 13<sup>15</sup> **A. Klucharev**, St. Petersburg University, Russia

13<sup>30</sup> - 23<sup>30</sup> **EXCURSION**

13<sup>30</sup> - Visit to the Swamp Birds Sanctuary "Obedska Bara" - 50 km west of Belgrade, by bus.

14<sup>30</sup> - Lunch.

Free activities; rowing, sightseeing, walking through the Forest "Debela Gora"

19<sup>00</sup> - **CONFERENCE DINNER**

22<sup>00</sup> - Return to Belgrade

**Thursday, 1<sup>st</sup> September**

Chairman: *V. Čadež*

9<sup>00</sup> - 9<sup>45</sup> **S. Vuković**, Institute of Physics, YU

9<sup>45</sup> - 10<sup>30</sup> **D.S. Karpuzov**, Bulg. Acad. Sci., Bulgaria

10<sup>30</sup> - 11<sup>00</sup> Coffee Break

Chairman: *T. Makabe*

11<sup>00</sup> - 11<sup>30</sup> **F. Tochikubo**, Tokyo Metropolitan University, Japan

11<sup>00</sup> - 11<sup>30</sup> **A. Yu. Strizhev**, IVTAN, Russia

12<sup>00</sup> Coffee

**12<sup>00</sup> - 14<sup>00</sup> POSTER SESSIONS**

Section 1.	Section 2.	Section 3.	Section 4.
1.15 - 1.20	2.11 - 2.15+PDP	3.21 - 3.35	4.17 - 4.25

14<sup>00</sup> - 14<sup>30</sup> Business Meeting

**14<sup>30</sup> CLOSING CEREMONY**