

## XXII HPLS&A Frascati, 9 to 12 October 2018

### INFORMATION TO PARTICIPANTS



October 9-12, 2018

Frascati, Italy

**W**e wish to welcome you to the 22<sup>nd</sup> Symposium on High Power Laser Systems and Applications. We hope your stay in Frascati will be enjoyable and that you will find the Symposium interesting and productive.

In order to help you make the most of your presence at HPLS&A we have prepared this sheet to provide you with information about the presentations and the other activities planned as part of this event. We recommend that you go over this information and please, contact us if you need further details.

#### **Program**

If you are presenting a paper during the Symposium, please check the program in the following pages to find out exactly at what time your presentation has been scheduled. There have been some changes made since the tentative program was distributed. You will find the summary of each presentation in the Booklet of Abstracts.

Presenters are requested to identify themselves to the session chair before the beginning of the session.

#### **Secretariat desk**

During the Symposium the secretariat desk is open daily, 8:20 am to 4:30 pm. At the desk you can register on-site, take the personal badge, call for a taxi, ask info for accommodations and restaurants, buy the access to the Proceedings volume.

#### **Bus transport**

The HPLS&A shuttle to and from Villa Mondragone is available to participants only at the scheduled time, as in the program. Please refer to the secretariat desk in case you need a taxi or information about the nice walking path to arrive at Frascati downtown starting from Villa Mondragone.

#### **Coffee and tea breaks, lunches**

Lunches and coffee/tea breaks are included in the registration fee. They will be served in the *Portico del Vasanzio*, in front of the delightful Italian garden, only at the scheduled time as detailed in the program.

#### **Gala dinner**

The Gala dinner is scheduled on Thursday, October 11, 7:30 pm at the restaurant "Cacciani" via Armando Diaz 13, downtown Frascati. Participation to the gala dinner is included in the registration fee. Tickets for not registered persons can be purchased at the secretariat desk. Bus transport will be not provided for this event.

#### **Wi-Fi**

Please ask the secretariat desk if you need username and password to connect Wi-Fi.



## Proceedings

Authors are kindly invited to submit their paper for publication in the Proceedings of HPLS&A 2018 that will be published by SPIE. The link for submission is [www.spie.org/HPL18](http://www.spie.org/HPL18) Please follow the SPIE manuscript specifications. Access to the Proceedings volume on line is included in the Regular fee only. Sponsors, students and participants who did not pay the regular fee can buy the access to the Proceedings at the Secretariat desk.

### ***Villa Mondragone, a touch of history***

*The venue of the XXII HPLS&A is Villa Mondragone, a patrician villa which lies on a hill 416 m above sea-level, in an area called, from its many castles and villas, "Castelli Romani" about 20 km (12 mi) southeast of Rome, near the ancient town of Tusculum.*

*Construction began in 1573 by Cardinal Mark Sittich von Hohenems Altemps, who commissioned the design on the site of the remains of a Roman villa of the consular family of the Quinctilii.*

*Pope Gregory XIII, whose heraldic dragon led to calling the villa "Mondragone" ("hill of the dragon"), used the villa regularly as a summer residence, as guest of Cardinal Altemps. It was at the Villa Mondragone that in 1582, Gregory promulgated the document which initiated the reform of the calendar now in use and known as the **Gregorian calendar**.*

*Villa Mondragone was at its maximum splendor during the epoch of the Borghese family (including Cardinal Scipione Borghese and Pope Paul V), who exhibited parts of their art and antiquities collections there (including the Antinous Mondragone which derives its name from the villa).*

*Other popes who passed long periods in Villa Mondragone were Clement VIII and Paul V. In 1620, the owners of the villa bequeathed the Mondragone library to the Vatican library. Starting from 1626, Pope Urban VIII decided to leave Villa Mondragone in favor of the Papal residence of Castelgandolfo, with a wonderful view on the lake.*

*In 1858 George Sand was guest in the villa, and found there a suitable atmosphere for the setting of her novel *La Daniella*. In 1865 the Jesuits turned it into a college, the Nobile Collegio Mondragone, for young aristocrats, which operated until 1953.*

*In 1912 Wilfrid Michael Voynich purchased 30 manuscripts from the Jesuits at the Villa Mondragone, one of which was later to be known as the **Voynich manuscript**, today defined as "The most mysterious manuscript in the world". The Voynich Manuscript is a vellum book of over 200 pages. There is text on almost every page in an unknown script. There are also colored drawings on all but about 20 pages. There is no confirmed solution of the script or any part of it, and the authorship and general dating of the manuscript is unknown. There is dissent among researchers as to its origin.*

*In 1981 Villa Mondragone was sold by the Order of the Jesuits to the University of Rome Tor Vergata. Presently, it is used mainly as venue of conferences and private events.*

---

**Paolo Di Lazzaro**

**Chair**



**Monica Cimino**

**Secretariat**





## XXII International Symposium on High Power Laser Systems and Applications

*October 9 to 12, 2018  
Villa Mondragone, Frascati*

### SUMMARY OF THE PROGRAM

Tuesday, October 9	Wednesday, October 10	Thursday, October 11	Friday, October 12
Bus leaves for Villa Mondragone (8:15 and 8:40)	Bus leaves for Villa Mondragone (8:15 and 8:40)	Bus leaves for Villa Mondragone (8:15 and 8:40)	Bus leaves for Villa Mondragone (8:15 and 8:40)
Opening address (8:50 – 9:00)	Alkali lasers (9:00 – 10:15)	Laser plasmas and inertial fusion (9:00 – 15:40)	Modulating laser pulses (9:00 – 12:05)
Keynote lecture (9:00 – 9:50)	Gas and Chemical lasers (10:15 – 14:55)	Poster session (15:40 – 17:30)	Lighting and cultural heritage (12:05 – 13:05)
Raman and Brillouin Lasers (9:50 – 12:20)	Laser-matter interaction, microprocessing (14:55 – 17:00)	IAC meeting (16:15 – 17:15)	Space applications, remote sensing (14:30 – 15:40)
Solid state and fiber lasers (12:20 – 15:30)	Bus leaves for Frascati (17:40)	Bus leaves for Frascati (17:40)	Awards for the best poster and the best oral presentation by under 35 speakers (16:20 – 17:00)
Alkali lasers (15:30- 16:55)		Gala Dinner Restaurant Cacciani, (19:30)	Concluding remarks and closure of the XXII HPLS&A (17:00 – 17:30)
Bus leaves for Frascati (17:40)			Bus leaves for Frascati (17:40)

**PROGRAM of the  
XXII International Symposium on  
High Power Laser Systems and Applications**

	<b>Tuesday, October 9</b>	<b>Frascati, piazza Marconi, in front of the City Hall</b>
8:15 and 8:40	Bus shuttle departures to Villa Mondragone	
		<b>Villa Mondragone</b>
8:00	Secretariat	On-site registration. Personal badge delivery. Social program info.
8:50	<b>P. Di Lazzaro</b> Chair	<b>Opening Address</b>
9:00 9:50		<b>KEYNOTE LECTURE</b> (Chair: Paolo Di Lazzaro)
9:05	<b>F. Capasso</b> Harvard University, Cambridge	<i>High power cw quantum cascade lasers: new frontiers of frequency combs and microwave/THz communications</i>
9:50 12.20		<b>RAMAN and BRILLOUIN LASERS</b> (Chair: Robert Walter)
9:55	<b>Y. Feng</b> SIOFM Shanghai	<i>High-power, widely wavelength-tunable Raman fiber lasers</i>
10:30	<b>R. Mildren</b> Macquaire University, Sidney	<i>Quasi-cw diamond Raman laser with 1.2 kW output power</i>
10:50	<b>C. Zesch</b> Tor Vergata University, Rome	<i>Raman lasers for trace gas detection</i>
11:10		<b>COFFEE BREAK</b>
11:40	<b>R. Mildren</b> Macquaire University, Sidney	<i>Bulk Brillouin lasers and frequency comb in diamond</i>
12:00	<b>J. Guo</b> Dalian Institute of Chemical Physics	<i>The study of optical frequency-comb laser generated by stimulated Raman scattering</i>
12:20 15:30		<b>SOLID STATE and FIBER LASERS</b> (Chair: Willy Bohn)
12:25	<b>A. Lucianetti</b> HiLASE Centre, Dolni Brezany	<i>HILASE laser centre: status and prospects</i>
13:00	<b>D. Penninckx</b> CEA, Le Barp	<i>Evolution of high-power &gt;kJ-class lasers</i>
13:35		<b>LUNCH</b>
14:50	<b>L. Deyra</b> Alphanov, Talence	<i>180 W single-mode laser operation of an Yb:YAG thin disk using a robust direct-bonding process</i>
15:10	<b>F. Gustave</b> ONERA, Palaiseau	<i>Strain gradients for up-scaling the power of single frequency fibre amplifiers</i>

15:30 16:55		<b>ALKALI LASERS</b> (Chair: Zamik Rosenwaks)
15:35	<b>D. Carroll</b> CU Aerospace, Champaign	<i>Effects of rare gas collision partner and pump intensity on the four-level Cs exciplex pumped alkali laser (XPAL)</i>
15:55	<b>E. Yacoby</b> Ben Gurion University, Beer-Sheva	<i>Continuous wave diode pumped flowing-gas Cesium Laser</i>
16:15	<b>G. An</b> SITP, Chengdu	<i>Experimental study of an optically pumped dual-wavelength alkali laser with a hybrid rubidium and cesium vapor cell</i>
16:35	<b>G. Pitz</b> Kirtland Air Force Base	<i>Characterization of a diode pumped alkali laser with a flowing gain medium</i>
16:55		<b>TEA BREAK and DISCUSSION</b>
17:40		BUS leaves for FRASCATI

	<b>Wednesday, October 10</b>	<b>Frascati, piazza Marconi, in front of the City Hall</b>
8:15 and 8:40	Bus shuttle departures to Villa Mondragone	
		<b>Villa Mondragone</b>
8:20	Secretariat	On-site registration. Personal badge delivery. Social program info
9:00 10:15		<b>ALKALI LASERS (Chair: David Carroll)</b>
9:00	<b>G. Perram</b> Air Force Institute of Technology, Ohio	<i>Multi-level kinetics and beam quality for diode pumped alkali lasers</i>
9:35	<b>I. Auslender</b> Ben Gurion University, Beer-Sheva	<i>Parametric study of the performance and beam quality of static Cesium DPAL: experiment and modelling</i>
9:55	<b>J. Guo</b> Dalian Institute of Chemical Physics	<i>Study on broadening of Na D<sub>1</sub> and D<sub>2</sub> lines spectra in sodium-argon mixture</i>
10:15 14:55		<b>GAS and CHEMICAL LASERS (Chair: Jarmila Kodymova)</b>
10:20	<b>M. Heaven</b> Emory University, Atlanta	<i>Development and scaling of diode-pumped rare gas lasers</i>
10:55	<b>A. Ionin</b> Lebedev Physical Institute, Moscow	<i>Transverse optical pumping of e-beam excited, high-pressure He/Ar mixture with a laser diode array</i>
11:15		<b>COFFEE BREAK</b>
11:40	<b>P. Mikheyev</b> Samara State Aerospace University	<i>Lasing in optically pumped Ar:Xe mixture excited in a dielectric barrier discharge</i>
12:00	<b>J. Guo</b> Dalian Institute of Chemical Physics	<i>Energy-transfer processes of the 6p[1/2]<sub>0</sub>, 6p[3/2]<sub>2</sub>, and 6p[5/2]<sub>2</sub> atoms under the condition of ultrahigh pumped power</i>
12:20	<b>A. Ionin</b> Lebedev Physical Institute, Moscow	<i>Super broadband hybrid mid-infrared laser systems</i>
12:40		<b>LUNCH</b>
14:00	<b>F. Wani</b> Kawasaki Heavy Industries, Tokyo	<i>High Power Laser activities at Kawasaki Heavy Industries, Ltd.</i>
14:35	<b>W. Shi</b> Dalian Institute of Chemical Physics	<i>Simulated experiment study on the closed gas cycle chemical oxygen iodine laser</i>
14:55 17:00		<b>LASER-MATTER INTERACTION, MICROPROCESSING (Chair: Gian Piero Gallerano)</b>
15:00	<b>H. Ohno</b> Soka University, Tokyo	<i>Detection of gold nanoparticles aggregation using a spectroscopic cell in an optical fiber fabricated by femtosecond laser pulses</i>
15:20	<b>A. Savin</b> Laser Systems Ltd, St.Petersburg	<i>Interaction of high-power laser pulses with ensemble of solid particles</i>

15:40	<b>V. Lednev</b> Prokhorov General Physics Institute, Moscow	<i>Laser induced breakdown spectroscopy for in-situ multielemental analysis during additive manufacturing process</i>
16:00	<b>D. Yano</b> Soka University, Tokyo	<i>Observation of inner surface laser-induced periodic surface structures in a micro-hole produced in a glass optical fiber by varying fs laser pulse number and energy</i>
16:20	<b>H. Besaucelè</b> LASSE, Gennevilliers	<i>High energy Excimer laser system for nanosecond annealing of semiconductor devices</i>
16:40	<b>S. Salerno</b> Laserline GmbH, Mulheim	<i>Welding with IR and blue high-power diode lasers</i>
17:00		<b>TEA BREAK and DISCUSSION</b>
17:40		BUS leaves for FRASCATI



	<b>Thursday, October 11</b>	<b>Frascati, piazza Marconi, in front of the City Hall</b>
8:15 and 8:40	Bus shuttle departures to Villa Mondragone	
		<b>Villa Mondragone</b>
8:20	Secretariat	On-site registration. Personal badge delivery. Social program info
9:00 15:40		<b>LASER PLASMAS and INERTIAL FUSION</b> (Chairs: Sarah Bollanti and Daniele Murra)
9:00	<b>D. Giulietti</b> University of Pisa	<i>Nanosecond versus femtosecond laser-plasma interaction</i>
9:35	<b>L. Gizzi</b> CNR-INO Pisa	<i>Lasers needs for future plasma based accelerators</i>
10:10	<b>D. Jaroszynski</b> University of Strathclyde, Glasgow	<i>Optical pumped ultra-short pulse CO<sub>2</sub> lasers as drivers of laser-plasma accelerators and other applications</i>
10:45		<b>COFFEE BREAK</b>
11:10	<b>J.L. Miquel</b> CEA/DAM, Arpajon	<i>Development of Laser mega-joule and PETAL facility: program overview</i>
11:45	<b>A. Zigler</b> Hebrew University of Jerusalem	<i>Interaction of high-intensity laser with matter: evolution of electrical fields during interaction with structured targets: remote triggering and lightning</i>
12:20	<b>H. Fiedorowicz</b> Military University of Technology, Warsaw	<i>Recent advances in laser plasma X-ray and EUV sources with a gas puff target</i>
12:55		<b>LUNCH</b>
14:20	<b>D. Jaroszynski</b> University of Strathclyde, Glasgow	<i>Compact radiation sources based on laser-driven plasma waves</i>
14:40	<b>V. Vozda</b> Czech Academy of Sciences, Prague	<i>Time-resolved study of free-free opacity in dense aluminum plasma</i>
15:00	<b>J. Krasa</b> Czech Academy of Sciences, Prague	<i>Target current – An appropriate parameter for characterizing the dynamics of laser-matter interaction</i>
15:20	<b>F. Consoli</b> ENEA Frascati	<i>Electromagnetic pulse characterization in ns laser-matter interaction at high energy and intensity</i>
15:40 17:30		<b>POSTER SESSION</b> (Chairs: Sarah Bollanti, Daniele Murra)
16:15		<b>TEA BREAK and DISCUSSION</b> IAC Meeting
17:30		<b>End of the POSTER SESSION</b>
17:40		<b>BUS leaves for FRASCATI</b>
		<b>Restaurant CACCIANI via Armando Diaz 13, Frascati</b>
19:30		<b>GALA DINNER</b>



	<b>Friday, October 12</b>	<b>Frascati, piazza Marconi, in front of the City Hall</b>
8:15 and 8:40	Bus shuttle departures to Villa Mondragone	
		<b>Villa Mondragone</b>
8:20	Secretariat	On-site registration. Personal badge delivery.
9:00 12:05		<b>MODULATING LASER PULSES</b> (Chair: Pierre Bourdon)
9:00	<b>H. von Bergmann</b> University of Stellenbosch	<i>High pressure CO<sub>2</sub> amplifiers for picosecond pulse amplification</i>
9:35	<b>H. Turcicova</b> HiLase Centre, Dolni Brezany	<i>Picosecond deep UV pulses generated by a 100 kHz thin disk laser systems</i>
9:55	<b>Y. Chen</b> Dalian Institute of Chemical Physics	<i>High energy 1342 nm electro-optically cavity-dumped laser and picosecond regenerative amplifier</i>
10:15	<b>M. Petrarca</b> University of Rome Sapienza	<i>Terahertz-based retrieval of the spectral phase and amplitude of ultrashort laser pulses</i>
10:35	<b>A. Lapucci</b> CNR-INO Florence	<i>Alignment tolerances of self imaging configurations for passive coherent beam combining</i>
10:55	<b>M. Endo</b> Tokai University, Hiratsuka	<i>Theoretical study of unstable resonators for diode pumped alkali laser by wave-optics simulation</i>
11:15		<b>COFFEE BREAK</b>
11:45	<b>A. Pogoda</b> Baltic State Technical Univ. S. Petersburg	<i>Principles of influence of static and dynamic intracavity gratings on spectral properties of high-power all-solid-state laser radiation</i>
12:05 13:05		<b>LIGHTING and CULTURAL HERITAGE</b> (Chair: Antonio Lapucci)
12:10	<b>P. Iacomussi</b> INRIM Turin	<i>Lighting a smart society</i>
12:45	<b>P. Di Lazzaro</b> ENEA Frascati	<i>Influence of UV radiation on the color of high-bilirubin bloodstains on the archaeological textile known as the Shroud of Turin</i>
13:05		<b>LUNCH</b>
14:30 15:40		<b>SPACE APPLICATIONS, REMOTE SENSING</b> (Chair: Antonio Lapucci)
14:30	<b>C. Cefalas</b> NHRF, Athens	<i>High power 157 nm laser irradiation of Cladosporium herbarum spores activates cell wall integrity signalling pathways</i>
15:05	<b>L. Fiorani</b> ENEA Frascati	<i>Laser radars for volcanic monitoring</i>
15:40		<b>TEA BREAK, DISCUSSION</b>
16:20 17:00		<b>AWARDING PRIZES</b> for the BEST POSTER and the BEST ORAL PRESENTATION by UNDER 35 SPEAKERS
17:00 17:30		<b>CONCLUDING REMARKS AND CLOSURE</b> of the XXII HPLS&A
17:40		<b>BUS</b> leaves for FRASCATI

## POSTER SESSION

P1	<b>M. Iyoda</b>	<i>Computer simulation of electric energy distribution of CO gas mixture</i>
P2	<b>J. Murillo</b>	<i>High power laser from OH+D2 → HOD + D reaction</i>
P3	<b>H. Li</b>	<i>The Numerical Investigation of Combustion Driven HBr Chemical Lasers</i>
P4	<b>S. Zhang</b>	<i>2μm emission enhanced by surface Plasmon resonance</i>
P5	<b>X. Li</b>	<i>Blue random laser based on solid waveguide gain film with plasmonics and scatters</i>
P6	<b>D. Bachmann</b>	<i>Crystalline Mirrors and Bonding Technology for High-Power Lasers</i>
P7	<b>L. Deyra</b>	<i>Latest developments of high power, ultrafast-compatible fiber laser components</i>
P8	<b>A. Duk</b>	<i>Second generation of COIL gas-dynamic flow path with atmosphere exhaust</i>
P9	<b>Y. Tan</b>	<i>Diode pumped alkali rubidium vapor laser by using Brewster angle structure</i>
P10	<b>Y. Wang</b>	<i>Improvement of line selected HF laser output efficiency by cascade effect</i>
P11	<b>A. Mezhenin</b>	<i>Output characteristics comparison for cw oil with different pumping</i>
P12	<b>V. Losev</b>	<i>THL-100 hybrid laser system, results, prospect</i>
P13	<b>M. Cipriani</b>	<i>High-power laser irradiation of porous media for inertial confinement fusion</i>
P14	<b>L. Mezi</b>	<i>The ENEA discharge produced plasma EUV source and its patterning applications</i>
P15	<b>S. Almagia</b>	<i>Laser induced breakdown spectroscopy as diagnostic for Tokamak and materials of fusionistic interest</i>
P16	<b>F. Antolini</b>	<i>Laser patterning of semiconductor QDs within a polymeric matrix</i>
P17	<b>P. Sdvizhenskii</b>	<i>LIBS for elemental mapping of composite wear resistant coatings synthesized by additive technologies</i>
P18	<b>L. Fiorani</b>	<i>Laser radar for marine monitoring</i>
P19	<b>V. Lazic</b>	<i>Integrated laser sensor for characterization and extended mapping of remote targets</i>
P20	<b>A. Puiu</b>	<i>Fast characterization of foodstuff by laser photoacoustic spectroscopy and chemometrics</i>
P21	<b>V. Dolci</b>	<i>Presentation on THz research and work at "La Sapienza" University of Rome</i>
P22	<b>F. Nguyen</b>	<i>The effect of slippage on the saturated power in short pulse FEL SASE devices</i>
P23	<b>L. Porcelluzzi</b>	<i>The challenge of focus-shift in high-power Laser material processing</i>
P24	<b>M. Duda</b>	<i>A single-shot NEXAFS spectroscopy using double stream gas puff target source</i>
P25	<b>M. Menichelli</b>	<i>Radiation hardness assurance: innovative aspects and challenges</i>