

I.A.L.M.S. - INTERNATIONAL ACADEMY FOR LASER MEDICINE AND SURGERY

# LASER COURSES 2005

*VENUE : FLORENCE*

*VILLA VIVIANI - VIA G. D'ANNUNZIO 230*

LASER MEDICAL EQUIPMENT/PHYSICS/ENGINEERING

*M. Pascu, E.P. Tomasini*

LASER PHLEBOLOGY AND VASCULAR LESIONS

*K. Khatri, L. Longo, O. Marangoni*

LASER COSMETIC MEDICINE AND SURGERY

(Resurfacing, Rejuvenation, Hair Removal, Pigmented Lesions),

*K. Khatri, L. Longo*

EFFECTIVE SCIENTIFIC WRITING – PUBLISH OR PERISH

*A. Baruchin*

LASER REHABILITATION – RHEUMATOLOGY - SPORT MEDICINE

*G. D. Baxter, L.. Longo, M. Postiglione*

ENT

*V. Oswal*

NURSING

*P. Smalley*

DIABETOLOGY

*L. Gasparyan, A. Makela*

LASER THERAPY FOR DISCAL HERNIAS

*PPM Menchetti*

*Further details and programs:*

**GENERAL ORGANIZING SECRETARY:**

**I.L.M. BORGO PINTI, 57 – 50121 FIRENZE**

## INVITATION

The series of courses promoted by the IALMS have three goals:

- **to promote the correct uses of lasers and light sources for the diagnosis and the treatment in medicine and surgery**
- **to teach** the guidelines based on theoretical and practical experiences between different world wide schools of Laser Technology in human sciences and medicine through discussion and demonstration
- **to foster** contacts between young and old scientists which work in the field of industry, engineering, physics, medicine and surgery.

The Basic Courses are organized by our highly respected faculty, included pioneers in the use of laser in medicine and surgery.

Some of the best industries of the world will give us their instrumentation for the practical demonstration and for the hands-on experiences.

Many International Institutions, Universities and Scientific Societies agree with this approach

The choice of Tuscany for this event allows for attendees to experience the history and art of the Italian Renaissance. Indeed, the use of lasers in medicine, surgery and human sciences represents a Renaissance of sorts in medical knowledge

### **REASON FOR CARRYING OUT A HIGH-LEVEL SCIENTIFIC CONFERENCE PROJECT IN THE FIELD OF RESEARCH:**

Scientific reasons: we would like to link the best scientists of the world with the young researchers, to make a common way of progress. These Course represent the entry level of the young researcher in the laser world. This approach should allows to use a common scientific language when the young will continue the researches.

Technological reason: The state-of-the-art of technological knowledge will show and discuss, with positive criticism, without direct dependence by the commercial business.

Socio.economic reasons: our participants must be researchers and scientists of all countries, included the Countries of low socio-economic level. For this reason we need the economic help of the EC, for an Europe really unit and open versus the world.

The official language is English with Italian interpretation (simultaneous and running).

### **COURSES: GENERAL PROGRAM**

*The main purpose of each Course is to teach laser use in substitution for/association with traditional techniques in cases where the laser use has favourable risk/effect and cost/benefit ratios.*

*We would like to establish why, when and how we must use laser in different medical sectors following the teaching scheme below:*

- Background on Diagnostic methods in each sector of Medicine
- Background on Therapeutics Treatments
- Background on the Limits of actual treatments and safety
- Types of Lasers used and their selected indications
- Side effects and limitations
- Present and future
- How to do it
- Clinical Practice & Videotapes
- Hands-on
- Course evaluation tests

*There is need for schematic protocols of laser treatment in each sector, based on the actual knowledge of this technique*  
**North America and Italy Continuing Medical Education Programs: Credit Hours requested for each course.**

## PRELIMINARY PROGRAMS

NOVEMBER 9<sup>TH</sup>, 2005

### BRIEF-COURSE ON LASER COSMETIC SURGERY

**(CME Program : 8 hours)**

**Directors: K. Khatri (Skin Laser Center. Boston, USA) – L. Longo ( Siena Univ. - I)**

***Attendees expected: phlebologists, angiologists, vascular surgeons, aesthetic physicians, dermatologists, aesthetic surgeons, plastic surgeons, physiotherapists, geriatrists, and family physicians***

Recognized by the American Academy of Dermatology, Continuing Medical Education Program, with 8 hours of Credit (Current AAD Approval Number # 226-100)

#### PROGRAM

- 9:00      New laser systems and theories  
 Laser-tissue interaction and safety  
 Laser and IPL rejuvenation  
 Laser and wrinkles, rithydes - method of treatment  
 Laser and scars  
 Indications and Controindications  
 Side effects and future developments
- 11        *Break*  
 How to do it  
 Laser , Tattoos and Pigmented lesions  
 Laser Blepharoplasty  
 Laser Cosmetic surgery and marketing  
 Side effects Complications and their treatment
- 13        *Lunch*
- 14:00    Basic Principles of Laser-Assisted Hair Removal and Safety Considerations  
 Clinical Overview of Laser-Assisted Hair Removal  
 Use of Lasers /Light Sources for Hair Removal : Marketing point-of-view  
 Eliminating Hair and Follicular Disorders in Dark Skinned Patients  
 New Advances in Laser-Assisted Hair Removal  
 Prevention and Treatment of Side Effects and Complications
- 16:00    Clinical Practice & Videotapes (All the teachers)  
 Hands-on (All the teachers)  
 Discussion (All the teachers)  
 Course evaluation tests
- 18:00    Conclusion

NOVEMBER 9<sup>TH</sup>, 2005

## LASER DIABETOLOGY AND CARDIOVASCULAR MEDICINE (EVIDENCE-BASED MEDICINE)

Directors: L. Gasparyan, PhD, A. Makela, MD (Helsinki, Finland)

***Attendees expected: diabetologist, physicians, general practitioner, endocrinologists, cardiologists, angiologists***

The main purpose of this workshop is to understand and master the rational application of low-level laser therapy in Types I and II diabetic patients with the aim of normalizing the latter's blood sugar level.

- *Introduction to low-level laser therapy in endocrinology and diabetology.*
- *Magneto-LED- laser therapy of diabetes mellitus: low-level laser therapy combined with magnetic field therapy, and light emitting diode (LED) light therapy in the treatment of diabetes mellitus.*
- *Practical methodological aspects of laser treatment of diabetes mellitus and its complications.*
- *Results of treatment of Type I and II diabetic patients. Detailed case histories of diabetic patients having undergone laser therapy for blood sugar level normalization.*
- *Scope for further development in laser therapy of diabetes mellitus: basic research; demonstration of the practical application of portable microlasers in the management of diabetes mellitus.*
- *An introduction to low-level laser therapy in the management of arterial hypertension and cardiac diseases.*
- *Why low-level laser therapy can be effective in the treatment of arterial hypertension.*
- *A practical approach to laser/quantum therapeutical management of arterial hypertension.*

NOVEMBER 9<sup>TH</sup>, 2005

## LASER EAR NOSE THROAT COURSE

Director: V. Oswal, MD (GB)

***Attendees expected: ENT, maxillo-facial surgeons, plastic surgeons, general surgeons, and paediatricians***

- Background on Diagnostic methods in ENT
- Background on Therapeutic Treatments
- Background on the Limits of actual treatments
- Types of ENT Lasers and their selected indications
- Side effects, complications and their treatment
- Present and future
- How to do it
- Clinical Practice & Videotapes
- Hands-on
- Course evaluation tests

NOVEMBER 9<sup>TH</sup>, 2005

## BRIEF COURSE ON LASER MEDICAL EQUIPEMENT, PHYSICS, ENGINEERING

**(CME Program : 8 hours)**

**Directors:** M L. Pascu (Atomic Inst., Bucharest Univ. RU), E.P. Tomasini (Mechanics Institute, Ancona University, I),

*The principal purpose of this Course is to introduce and update the audience to the most advanced laser-based techniques for medical applications. Laser Doppler vibrometry and velocimetry techniques, as well as, Particle Image Velocimetry and other laser-based techniques are presented as extremely useful measurement techniques for medicine ,surgery, diagnosis and therapy*

**Attendees expected: physicians (regardless of specialty), physicists, biomedical engineers, manufacturers, laser systems operators, managers, physiotherapists, radiologists, biochemists, students (physics, medicine, medical physics, engineers, chemists).**

### PROGRAM

- 1: Short history of laser discovery. Laser definition. Principles of laser operation.
- 2: Laser active medium. Typical elementary processes. Laser optical cavities (optical resonators).
- 3: Definition; types of optical cavities. Intra-cavity elements. Principles of operation , functions and structures.
- 4: Laser beam characteristics: fundamental properties: monochromaticity, directivity, coherence, brightness; -derived , properties: energy/power density, mode structure, etc.
- 5: Correlation between the laser beams characteristics and their applications in medicine and biology
- 6: Gas lasers: HeNe (and derived lasers), CO<sub>2</sub>, nitrogen, excimer, metal vapour, argon ion (and derived lasers), etc. Principles of operation and engineering.
- 7: Liquid lasers; tuneable dye lasers. Principles of operation and engineering.
- 8: Solid state lasers: Nd:YAG, Ho:YAG, Er:YAG, vibronic and tuneable lasers.
- 9: Operation Principles and engineering.
- 10: Semiconductor lasers. Fixed wavelength and tuneable diode lasers: Principles of operation and engineering.
- 11: Chemical lasers.
- 12: X-ray lasers
- 13: Trends in new laser type development. Basic processes in laser surgery and laser therapy. Comments on specific processes in laser surgery and laser therapy.
- 14: Laser safety. Brief introduction and basic notions
- 15 – LASER DOPPLER VIBROMETRY IN MEDICINE:  
Applications In: Medicine, Dentistry, Orthopedy, Otorinolaryngology
- 16 – LASER DOPPLER VELOCIMETRY:  
Applications In: Blood Velocimetry, Tissue Blood Perfusion, Cardiology
- 17 – 3D OPTICAL MEASUREMENTS :  
Applications In: Early Diagnosis Of Melanoma, Skin Wound Measurement, Orthopedy And Plastic Surgery
- 18 – PARTICLE IMAGE VELOCIMETRY:  
Application In: Mechanical And Biological Human Heart Valve Fluidodynamic
- 19 - BRIEF INTRODUCTION IN LIGHT SCATTERING IN TISSUE.
- 20 - LASER DOPPLER MONITORING OF BLOOD PERFUSION AND SPECKLES
- 21 - LASER DOPPLER IMAGING OF PERFUSED SUPERFICIAL AREAS.

NOVEMBER 9<sup>TH</sup>, 2005

## BRIEF COURSE ON LASER NURSING

**(CEU Program : 5 hours)**

**Director:** P. Smalley (Director, Technology Concept Institute, Chicago, USA)

*The main purpose of this Course is to teach rational management before, during and post-laser treatment of lesions in cases where traditional therapies do not have favourable risk/effect and cost/benefit ratios.*

*We would like to establish why, when and how the role of nursing is justified in laser use following the teaching scheme below:*

- Background on the nursing management
- Patient pre- and post-treatment: the role of the Nurse
- Background on the Limits of actual treatments and safety
- Types of Lasers used and their selected indications
- Side effects, limitations and safety measures

- Present and future
- How to do it
- Clinical Practice & Videotapes
- Hands-on
- Course evaluation tests

*There is need for schematic protocols of "laser nursing", based on the actual knowledge in this technique.*

***Attendees expected: nurses, physiotherapists, aesthetic operators***

NOVEMBER 9<sup>TH</sup>, 2005

## **LASER PHLEBOLOGY COURSE**

**(CME PROGRAM: 8 HOURS)**

*Directors: K. Khatri, MD (Boston - USA), L. Longo, MD (Siena Univ. - I)*

***Attendees expected: phlebologists, angiologists, vascular surgeons, aesthetic physicians, dermatologists, aesthetic surgeons, plastic surgeons, physiotherapists, geriatricians, and family physicians***

Recognized by the American Academy of Dermatology, Continuing Medical Education Program, with **8 hours of Credit** (Current AAD Approval Number # 225-100)

### **PROGRAM**

- 9:00 - Anatomy /Physio-pathology / Hystology/Diagnosis  
 Background on Phlebologic therapies  
 Laser-tissue interaction and safety  
 Lasers used Indications and Contra-indications  
*Break*  
 How to do it  
 Laser and angiomas - method of treatment  
 Laser and Light sources on telangiectases  
 Side effects and future developments
- 13:15 - *Lunch*  
 Clinical Practice & Videotapes  
 Hands-on (All Faculty)  
 Discussion (All Faculty)  
 Course evaluation tests (All Faculty)  
*Conclusion*

NOVEMBER 9<sup>TH</sup>, 2005

## BRIEF COURSE ON LASER REHABILITATION

(CME Program : 8 hours)

Directors: G.D. Baxter (Ulster Univ., Jordanstown – GB), M. Postiglione, MD (ILM Florence, Italy)

*Attendees expected: phlebologists, angiologists, orthopaedics, aesthetic physicians, sport physicians, dermatologists, physiotherapists, radiologists, geriatricians, and family physicians*

### PRELIMINARY PROGRAM

Anatomy of the musculo-skeletal system  
 Physiopathology/Diagnosis  
 Background of physical therapy  
 Laser-tissue interaction, laser used and safety  
 Indication and contraindications

#### **Break**

Laser and cicatrization  
 Laser and sports traumatology  
 Laser and rheumatology  
 Side effects and future developments

#### **Lunch**

Clinical practice and videotapes  
 Hand-on  
 Discussion  
 Course evaluation tests and Conclusion

NOVEMBER 9<sup>TH</sup>, 2005

## LASER THERAPY OF DISCAL HERNIAS

(CME PROGRAM: 8 HOURS)

Director: PPM Menchetti, MD (Physical Therapy Dept, Florence University)

*Attendees expected: orthopedics, neurosurgeons, neurologists, vascular surgeons, plastic surgeons, physiotherapists, geriatricians, and family physicians*

### PRELIMINARY PROGRAM

Not yet available