Memorandum of Understanding

between

The Laser and Plasma Research Institute (LAPRI)

, Shahid Beheshti University,

Iran,

and

The Higher institute for laser research and applications (HILRA)

Damascus University,

Syria.

Referring to the "Cooperation Agreement in Scientific Research and Technical Development in Higher Education" between the Government of the Syrian Arab Republic and the Islamic Republic of Iran, signed on 27 December 2006,

And after bilateral talks held at the first official meeting of the Syrian-Iranian Joint Committee for Scientific Research and Technological Development during 26-30 May, 2008, both parties propose the following areas of collaboration between Higher Institute for Laser Research and

Applications HILRA, Damascus University and Laser and Plasma Research Institute, Shahid Beheshti University:

1- Joint training workshop to be held by academic members for 3-4 days focused on Laser applications in medical, engineering, or industrial domain.

2- Development of joint research projects to be carried out by researchers from both parties, to be agreed upon by both parties and pending fund allocations. Some area of interests are as follows:

- Design and fabrication of 150W fiber laser
- Digital holography: Digital holography technique that combines off-axis geometry heterodyne technique for a variety of applications.
- Laser vapor deposition technique of manufacturing film or clusters
- Laser ablation and material treatment, both experimental and modeling
- Laser matter interaction including biomaterials, both experimental and modeling

3- Preparation for a joint workshop in which researchers from both institutes present their work and research interests in order to establish a common ground and reach a better understanding between researchers from both parties.

And we propose the following work plan to implement points mentioned above.

Regarding the training workshop (point 1 above):

1- Suggested topic for the workshop is: Medical Laser applications. Target audience: professionals working in the medical field, clinics and hospitals using Laser equipments. The workshop goal is to give an overview of lasers in medicine and safety issues related to laser use.
2- The timing of the workshop could be in August- 2008, and if this is approved, preparation should start immediately.
3- The workshop is jointly performed by the HILRA and LAPRI, the theoretical part will be held at Damascus University and the practical part may be held at LAPRI, Iran.

Regarding the joint research project on

Design and fabrication of fiber Laser with output power of 150 W.

1- The work will be done at LAPRI facilities.

Funding for the project estimated about **200000 Euros** (two hundred thousands Euros) could come from the joint fund established by the governmental agreement between Syrian and Iranian governments.

If the funding is delayed or is not possible, both parties will discuss the possibility of fabricating the Laser at LAPRI and transferring it to HILRA when it is ready. The costs of the project will be covered by HILRA in this case.

The required equipments listed with estimated prices in the table below:

No.	Equipment	# of Units	Estimated price In Euros
1	Diode Laser	10	46000
2	Fiber doped Ytterbium	About 30 m	20000
3	Bragg Gratings	4	4000
4	Power supply	1	15000
5	Chiller	1	15000
6	Mechanical components	-	10000
7	Fiber splicer	1	90000

2- HILRA will name a scientific team of 1-2 person to visit LAPRI to participate and follow up on the project. Travel and cost of stay covered by Damascus University or as specified in the general agreement of cooperation between the ministry of higher education of Syria and the ministry of science, research and technology of Iran.

3- The time duration of the project is about 12 months as follows:

- 3 months for Literature survey and theoretical calculations.
- 4 months for ordering equipments
- 4 months for assembling and testing the fiber Laser
- 1 month for documentation

4- After the project is finished the laser will be transferred to HILRA, Damascus University, Syria and the splicer will stay at LAPRI, Iran.

5- The project will start as soon as the funding is allocated.

Regarding the workshop mentioned above (point 3 above) we agree in principle to hold such a workshop during the year 2009.

This agreement is valid for Four years and can be extended upon agreement of both parties.

Wednesday, May 29, 2008

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