Collaboration between Università degli Studi di Milano – Bicocca and CTU in Prague

SILMI Reference Number

Purpose of the visit:

Purpose of this visit is to analyze the experimental data obtained jointly at the University of Szeged, Szeged, Hungary. Experiments were performed using an ultraviolet dye/ Excimer laser (NdYag/KrF) on 1mm diameter cylindrical carbon target. The main beam had a wavelength of 248 nm. The optical diagnostics was carried out with the 496 nm radiation using the same laser system (final amplification of the beam was obtained after frequency doubling of the green beam on 496 nm wavelengths, whereas the unconverted radiation could be used for diagnostic). The goal of the experiment was to investigate the expanding plasma using simultaneously two techniques Viz. interferometry and shadowgraphy. We have used the Nomarski interferometer with a Fresnel biprism placed at the end of the vacuum chamber. Shadowgraphy of the expanding plasma was performed using a probe beam of wavelength 496 nm. The delay between the main and the probe beams was varied from 0 to 20 ps. We have obtained several images of the expanding plasma. These results will be analyzed jointly at the Technical University of Prague with Prof. Kalal and his team using a professor Kalal's program Analyze_3_6.

The goal of the visit is to learn the correct use of Prof. Kalal's program in order to make good analysis and to start to study how make implementation for this program or how to make similar program.

Description of the work carried out during the visit:

1. Visit to the laboratory and installation of a Nomarski interferometer diagnostic (I arrived in Szeged when it was already ready and so I need to learn how to install this kind of diagnostic for my studies);
2. Dectailled explanation of Anlyze_3_6 program;
3. Analysis of the data for my bachelor degree;
4. Explanation of the source code and basical programmation.

Description of the main results obtained:

1. Consultations to methodology of complex interferogram analysis using custom software;
2. Analysis of the data for my bachelor degree;
3. Consultations to methodology to make or implement complex interferogram analysis custom software.

Future collaboration with host institution:

1. Agreement was made for visit of Prof. Kalal to Milano Bicocca to collaborete in the implementation of the custom software

Projected publications/articles resulting or to result from your grant:

1. Submission of one bachelor thesis (UMB student Chiara Liberatore)