



Agenda of the Chinese OptiLayer Workshop

“Thin film optical coatings: from basic theory to modern applications”

organized by Tongji University and OptiLayer GmbH

October 19-22, 2015, Shanghai

Monday, October 19

8:00 - 9:00 **Course registration**

9:00 – 12:00 **Basics of thin film optics**

Thin films and optical coatings models and notations

Maxwell equations, Fresnel formulas, Pointing vector

Matrix method and other techniques for calculating spectral characteristics of optical coatings

Basic properties of multilayers

12:00 – 13:00 **Lunch**

13:00 – 17:00 **Main types of optical coatings and their characteristics**

Quarter-wave mirrors

Antireflection coatings

Phase properties of multilayers

Basics of optical coating design

Tuesday, October 20

9:00 – 12:00 **Overview of thin film optics software**

Main principles and functions of thin film software

Types of data: thin film and substrate materials, designs and stacks, target spectral characteristics, measurement data, etc.

Import of measurement data and spectral targets to thin film software

Export of results, high-quality graphical presentations

12:00 – 13:00 **Lunch**

13:00 – 17:00 **Practical exercises and training**

Import of data from various types of spectrophotometers and ellipsometers (Perkin-Elmer, Cary, Woollam, etc.)

Analysis of spectral properties of quarter-wave mirrors, antireflection coatings, and coatings of other types

Design of optical coatings using refinement and needle optimization techniques

Optical characterization of thin films, accurate determination of thin film refractive indices

Wednesday, October 21

9:00 – 12:00 **General purpose design techniques and practical aspects of designing**

Gradual evolution design techniques

Specific features of designing of coatings at oblique light incidence

Advanced thin-film design techniques improving design-to-fabrication workflow

12:00 - 13:00 **Lunch**

13:00 – 17:00 **Design of special types of optical coatings**

Design of WDM and narrow band pass filters

Design of multilayers for ultrafast applications

Thursday, October 22

9:00 – 12:00 Monitoring techniques and thin film characterization

Classification of monitoring techniques, monochromatic and broadband optical monitoring

Monitoring techniques and pre-production error analysis

Advanced thin film characterization using spectrophotometric and ellipsometric data

12:00 – 13:00 Lunch

13:00 – 16:00 Post-production characterization and modern approaches to raising production yields

Reverse engineering of optical coatings based on off-line and on-line measurement data

Software support of full design-production chain

Automation of optical coating production