

Master Physique fondamentale et applications

Laboratory projects

Informations

Composante : Faculté des Sciences

Responsables

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Langue(s) d'enseignement

Anglais

Contenu

Students have to deal with 4 projects during 2 afternoons each. Two setups that are similar but not identical allow up to 4 students to work on each project:

- (1) Diode lasers,
- (2) Nd:YAG lasers,
- (3) optical modulation (EOM, AOM),
- (4) simulations for imaging systems.

Keywords are given for each of the projects to guide the students to measurements that allow them to understand how the components work, quantify their action of the light they provide or characterize the light they produce.

Compétences à acquérir

Group work.

Alignment skills (for all participants).

Hands-on knowledge on modern optical instruments: diode lasers, Nd:YAG lasers, electro-optical modulators, acousto-optical modulators, ray tracing programs for optical system design, matlab/python

Search for useful information (manuals etc.); use it to decide how to best make your measurements; take reasonable measurement habits: check the range, use the most informative distribution of the measurement points; check for reproducibility.

Fit models to data, make publication style graphs, validate your numerical simulations using analytical solutions in simple configurations, extract essential information from image data.

Modalités d'organisation

This teaching unit is an intermediate between an undergraduate lab work and a research project.

Students have to deal with 4 projects during 2 afternoons each. Two setups that are similar but not identical allow up to 4 students to work on each project.

A complete research style report on the background, acquired measurements and conclusions are expected for each project and student group.

Pré-requis obligatoires

Basic knowledge on lasers, scientific programming, anisotropic optics

Prérequis recommandés

Basic knowledge on ray-tracing programs (Oslo), laser safety

VOLUME HORAIRE

- Volume total: 30 heures

- Travaux pratiques: 30 heures

Codes Apogée

- SPFBU35J [ELP]

Pour plus d'informations

[Aller sur le site de l'offre de formation...](#)



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