

INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

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| Name of the Host Laboratory | Laboratoire Physique de la Matière Condensée |
| Website of the Host Laboratory | http://pmc.polytechnique.fr |
| Research Group | Physics of irregular systms |
| Internship Supervisor | Hervé Henry |
| Internship Subject | Wetting in multiphase systems using the phase boundary method. |
| Student's level | <input checked="" type="checkbox"/> Advanced Undergraduate Students (3 rd or 4 th year) <input checked="" type="checkbox"/> Master's students (1 st or 2 nd year) <input checked="" type="checkbox"/> PhD students |
| Proposed Duration | <input checked="" type="checkbox"/> 3 months <input checked="" type="checkbox"/> 4 months <input checked="" type="checkbox"/> 5 months <input checked="" type="checkbox"/> 6 months |
| Prerequisites | Some experience wth programming, statistical physics, some experience with PDEs |
| Internship description (max. 15 lines) | <p>The phase separation (or spinodal decomposition) is an ubiquitous mechanism in material science. It leads to the separation in two phases of an initially homogeneous mixture when it is cooled down. It is well described by simple partial differential equations such as the Cahn Hilliard equation for which the interface between the two phases has a given thickness. However, the description of the wetting properties in this context is still difficult and while many possibilities have been explored none is fully satisfactory.</p> <p>The aim of the internship will be to propose a diffuse boundary model that allows to properly describe both wetting properties and transport at the boundaries. To this purpose an auxiliary field will be used.</p> |

The boxes marked with cross implies eligible