



Advanced Methods for Optical Characterization of Complex Particle Systems

Méthodes avancées pour la caractérisation optique de systèmes
particulaires complexes

Avancement du projet

LMFA, le 20-21/11/2014



Calendrier

Tasks	Time schedule and duration in months																													
	Year 1(2013-2014)						Year 2(2014-2015)						Year 3(2015-2016)						Year 4(2016-2017)											
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48						
1. Development of Ray Theory of Wave																														
1.1 Extension of VCRM to 3D scattering							I																							
1.2 Shaped beam & optical forces							I, III may be shifted by 6 months depending on PhD recruitment)																							
1.3 Pure wave-optics effects							II, I, IV																							
1.4 Inhomogeneous objects							IV, II, I																							
2. Validation of the model																														
2.1 Numerical validation: numerical codes							I, II, III																							
2.2 Exp.: scattering diagrams: droplets and bubbles							II																							
2.3 Exp. optical forces (spheroid&partially wetted sphere)							III																							
3. Applications																														
3.1 Mechanical effects of light on non-spherical particles							III, I																							
3.2 Optical particle sizing instruments (PDI _{xxxx})							II, I																							
3.3 Capillary jets and spray (sprays)							I, II																							
3.4 Quantitative imaging – gradients (uflows)							IV, II, I																							
4. Global synthesis and analysis																														
4.1 Organization, synthesis, meetings & reports	I	II			III			IV			I			II			III			IV			I							
4.2 Dissemination and valorization of the results					all						all						all					all								

I - CORIA

II - IUSTI

III - CRPP

IV - LMFA

Progress of the project

Task 1. development of theory

- VCRM to 3D (P1): change of language, Dr. Ma, Theo ?
- Shape beam & forces: **3 publications** (P1).
- Wave optics (P1, P2, P3): good advance: **paper in preparation P1+P2, Critical for elliptical particle: to be finished**
- Inhomogeneous object (P4, P2, P1): ???

Task 2. Validation

- Numerical (P1, P2, P3): well advanced, **paper to submitted.**
- Scattering diagram (P2): Exp. ready, meas. In progress(P1).
- Optical force (P3): in progress ?

Résumé des tâches des 6 premiers mois

Task 3. Applications

- Mechanical of force:
 - P1: Simulation OK,
 - P3: exp. In progress
- Optical particle sizing:
 - to begin P1 & P2.
- Capillary jet and spray (P1, P2: M6):
 - P2: elliptical jet : in advance
 - P1: beginning Dr Ma.
- Quantative imaging – gradients ((P4,, P2, P1)):
 - to begin ??

Résumé des tâches des 6 premiers mois

Site web à construire

- amocops.univ-rouen.fr
- www.amocops.eu

Prochaine réunion en April or May?

- 18 month report !!
- Your realizations
- Your Publications and communications
- Your advances,
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