

Workshop Program (October 5th, 2010)

Monday October 11

8.00-9.00 Registration, ENS-Accueil, 46 allée d'Italie		
9.00-9.05	Rolf Walder, SOC	Opening
9.05-9.15	Ralph Everaers, CECAM, CBP	Welcome Address
Session 1 : Magneto-radiation-hydrodynamical simulations I Chair: Gilles Chabrier		
9.15-9.55	Richard Klein, Berkeley	Feedback Effects on the Formation of High Mass and low mass stars
9.55-10.35	Patrick Hennebelle, ENS-Paris	Collapse of magnetized dense cores
Coffee-break		
11.05-11.35	Benoît Commerçon, MPA Heidelberg	Radiation-Magneto-Hydrodynamics for star formation calculations
11.35-12.05	Kengo Tomida, National Astronomical Observatory of Japan	Formation, Evolution and Observability of low-mass first cores
12.05-12.35	Matthias Gonzales, Université Paris Diderot & CEA	Radiation-hydrodynamics effects in stellar jets-ISM interaction
12.35-12.50	Astrid Lamberts, LAOG, France	Hydrodynamics of colliding wind binaries
Lunch-break		
14.20-14.50	Geoffroy Lesur, DAMTP, Cambridge	Vortices in accretion discs: formation process and dynamical evolution
Session II : Turbulence Chair: Alexei Khokhlov		
14.50-15.20	Sébastien Fromang, CEA Saclay	High resolution local simulations of MHD turbulence induced by the magnetorotational instability
15.20-16.00	Alexei Kritsuk, UC San Diego	New Insights from from MHD Simulation of Interstellar Turbulence
Coffee-break		
16.30-17.00	Christoph Federrath, ITA-Heidelberg, ENS-Lyon	Modeling interstellar turbulence and star formation
17.00-17.30	Doris Folini, ENS-Lyon, IACETH, ETH-Zürich	Supersonic Turbulence in Shock Bound Slabs
17.30-18.10	Wolfram Schmidt, U Göttingen	Computation of the Turbulent Pressure in Astrophysical Fluids Dynamics
CECAM-Apero at Ninkasi		

Tuesday, October 12

Session III : Flames		Chair: Ewald Müller
9.15–9.55	Alexei Khokhlov, Chicago	Interplay of chemistry and fluid dynamics in detonation waves
9.55–10.35	Fritz Roepke, MPA Garching	Multi-dimensional simulations of thermonuclear explosions in different Type Ia supernova scenarios
Coffee-break		
11.05–11.35	Inma Dominguez, Granada	Multi-dimensional instability, propagation, and decay of carbon-oxygen detonations with complete and partial energy release in Type Ia supernovae
11.35–12.15	Heiko Schmidt, BTU Cottbus	Heterogeneous multiscale concepts in combustion and beyond
Lunch-break		
Session IV : Stellar and Planetary Structure and Evolution		Chair: Isabelle Baraffe
14.15–14.55	Ewald Müller, MPA Garching	Simulating the explosion of massive stars: computational challenges and recent results
14.55–15.25	Ken Chen, U of Minnesota	Multi-D simulations of pair-instability supernovae
15.25–16.05	Casey Meakin, U of Arizona, Tucson	3D Stellar Evolution
Coffee-break		
16.35–17.15	Maxime Viallet, ENS-Lyon	Time implicit computation of multi-dimensional stellar structures: difficulties and perspectives
17.15–17.55	Adam Showman, U Arizona, Tucson	Atmospheric circulation of hot Jupiters

Wednesday, October 13

Session V : High-performance Computing & Parallelism		Chair: Romain Teyssier
9.00–9.40	Jean-Yves L'Excellent, ENS-Lyon	Parallel sparse direct methods and the MUMPS package
9.40–10.20	Eric de Sturler, Virginia Tech	Adaptive Multilevel Preconditioners for Dynamic Meshes
10.20–10.50	Glib Ivashkevych Kharkiv Institute	Python library for simulations of ensemble of particles on GPU
Coffee-break		
11.20–12.00	Robert Falgout, LLNL	Scalable Multigrid Methods
12.00–12.40	Peter Messmer X-Tech Corporation, Boulder	Plasma Simulations on Emerging Hardware Architectures
Lunch		
Free afternoon: visit of Lyon (15.30 guided tour)		
7.30 pm: Conference Dinner at Brasserie Georges		

Thursday, October 14

Session VI : Particles		Chair: TBD
9.00–9.40	Andrei Bykov, Joffe St. Petersburg	Processes in magnetized plasma flows with energetic particle acceleration
9.40–10.20	Ken Nishikawa, UAH/CSPAR, Huntsville	Simulation of relativistic shocks and associated radiation from turbulent magnetic fields
10.20–10.50	Alexandre Marcowith LPTA Montpellier	Multi-scale coupled fluid-kinetic simulations
Coffee-break		
11.20–12.00	Jérôme Pétry, Strasbourg	Pulsars and their electromagnetic surrounding: an approach by PIC simulations
12.00–12.40	Eric Sonnendrücker	A 3D parallel PIC code for the simulation of charged particules
Lunch break		
Session VII : Multi-scale Flows		Chair: Rolf Walder
14.15–14.55	Assyr Abdulle, EPFL Lausanne	Explicit methods for deterministic and stochastic differential equations with multiple scales
14.55–15.35	Manuel Torrilhon, ETH Zürich	Coarse-Graining in Kinetic Gas Theory: Non-Equilibrium Fluid Flow Models
Coffee-break		
16.05–16.45	Keh-Ming Shyue, NTW Taipei	Front Tracking Methods for Compressible multiphase Flow
16.45–17.25	Jean Favre, CSCS Manno	Visualization support with VisIt
CRAL Apero at CRAL		

Friday, October 15

Session VIII : Radiative Transfer		Chair: Peter Hoefflich
9.00–9.40	Peter Hauschildt, Hamburg	3D radiative transfer
9.40–10.10	Rolf Kuiper Argelander-Institut of Astronomy	Ray-tracing + Flux-Limited-Diffusion: A hybrid method for fast and accurate frequency-dependent radiation transport in MHD simulations
10.10–10.40	Gabriel Altay Durham University, UK	Radiative Transfer Ray Tracing, Forward and Backwards
Coffee-break		
11.10–11.40	Neal Vaytet CEA Saclay	A numerical model for 3D multigroup radiation hydrodynamics
Session IX: Magneto-radiation-hydrodynamical simulations II		Chair: Richard Klein
11.40–12.20	Hubert Klahr, MPA Heidelberg	Radiation-hydrodynamics in accretion disks
Lunch break		
14.00–14.30	Luc Dessart, LAM Marseille	Non-LTE time-dependent radiative transfer simulations of supernovae II-Plateau, II-peculiar, Ib, and Ic
14.30–15.00	Paul Sutter U. Illinois, Urbana-Champaign	Subgrid models of active galactic nuclei in clusters of galaxies
15.00–15.40	Romain Teyssier U Zürich/CEA Saclay	Galaxy Formation: Towards Resolving Interstellar Turbulence
Closing Remarks		
End of workshop		