

**SALA LEONE:**<https://unitus.zoom.us/join/91092598326>

ID webinar:

910 9259 8326

**SALA PALMA:**<https://unitus.zoom.us/join/98251613161>

ID webinar:

982 5161 3161

**MONDAY - 13th September****virtual room Leone**

14:10 - 14:20

*Opening speech* - Stefano Ubertini

14:20 - 14:25

*Introducing speech* - Giacomo Falcucci

14:25 - 14:30

*Introducing speech* - Sauro Succi

14:30 - 15:30

**Keynote speech - virtual room Leone**  
Giorgio Parisi - *Pebbles in Field Theory*

15:30 - 15:50

*Coffee Break***Technical Session 1 - Advanced Methods 1 - virtual room Leone**

15:50 - 16:10

Wagner A., Pachaliev A., Parsa R.

What we can learn from mapping Molecular Dynamics simulations onto lattice gases/ lattice Boltzmann

16:10 - 16:30

Pachaliev A., Wagner A.

Deriving Lattice Boltzmann from Molecular Dynamics

16:30 - 16:40

*Coffee Break*

16:40 - 17:00

Coreixas C.G., Thyagarajan K., Lätt J.

Efficient compressible lattice Boltzmann methods based on numerical equilibria and adaptive lattices

17:00 - 17:20

Cresta D., Denniston C.

Fluid phase interface dynamics of coupled Lattice-Boltzmann and molecular-dynamics simulations

17:20 - 18:00

**Plenary talk - virtual room Leone**  
Petros Koumoutsakos**Technical Session 2 - Soft Matter - virtual room Palma**Leyva S.G., Pagonabarraga I., Hernández Machado A.

Lattice-Boltzmann simulation of imbibition in Slippery Liquid-Infused Porous Surfaces (SLIPS)

Matias A.F.V., Coelho R.C.V., Andrade Jr. J.S., Araújo N.A.M.

Dissolution and dispersion in swelling porous media

Spendlove J., Xu X., Schenkel T., Halliday I.

A Single-Framework Approach To Modelling Fluid Filled Vesicles Using Chromodynamic Multi-Component Lattice Boltzmann Method

Pelusi F., Sega M., Harting J.

Dewetting properties of a liquid film via multi-component lattice Boltzmann simulations

## TUESDAY - 14th September

### *Plenary talk - virtual room Leone*

9:40 - 10:20 Benedikt Dorschner - Particles-On-Demand: Modelling of high-speed compressible flows

### *Technical Session 3 - Compressible Flows - virtual room Leone*

10:20 - 10:40 Ehsan R., Dorschner B., Karlin I.V. Particles-on-Demand for high Mach number flows

10:40 - 11:00 Kallikounis N.G., Dorschner B., Karlin I. V. DUGKS-in-PonD: A finite volume implementation of Particles on Demand method

### *Technical Session 4 - Advances Methods 2 - virtual room Palma*

Vesper E., Kleijn C.R. Coupling of DSMC and Kinetic Models based on the Type of Non-Equilibrium

Nabapure D., K. Ram Chandra Murthy DSMC investigation of rarefied flow over a wall-mounted cube

11:00 - 11:20 *Coffee Break*

11:20 - 11:40 Li W., Wang J., Gopalakrishnan P., Li Y., Zhang R., Chen H. A Hybrid LBM Approach for Simulation of High Speed Flows

11:40 - 12:00 Wilde D., Bedrunka M., Krämer A., Reith D., Foysi H. Exploration of three-dimensional compressible flows by the semi-Lagrangian lattice Boltzmann method

12:00 - 12:20 Yoo H., Favier J., Sagaut P. A rotating overset grids scheme for simulating compressible flow by using lattice Boltzmann method

12:20 - 12:40 Bhadauria A., Dorschner B., Karlin I. V. Fluid-Structure Interaction of Rigid Bodies in Compressible Flows

Tan Q., Hosseini A., Seidel-Morgenstern A., Thévenin D., Lorenz H. Modeling ice crystal growth using the lattice Boltzmann method

Sun C., Otomo H., Shi Y., Inamuro T., Zhang R., Chen H. Enhanced phase-field-based lattice Boltzmann models for engineering applications

Vahala G., Vahala L., Soe M., Ram A.K. Quantum Lattice Algorithm for Maxwell Equations

Kliemank M.L., Wilde D., Bedrunka M., Kramer A., Foysi H., Reith D., Investigation of airflow around gable roof houses using the lattice Boltzmann method with KBC collision operator

12:40 - 15:00 *Lunch Break*

### *Technical Session 5 - Bubbles and Droplets - virtual room Leone*

15:00 - 15:20 Mangani F., Roccon A., Soldati A. Density and viscosity effects on deformation, breakage and coalescence of large bubbles in turbulence

15:20 - 15:40 Sega M., Giri A.K.. Intrinsic structure and dynamics of moving droplets

### *Technical Session 6 - Complex Flows 1 - virtual room Palma*

Dellar P.J. Discrete divergence-free conditions in lattice Boltzmann magnetohydrodynamics: a data-driven approach

Ji Y., Lin C., Luo K. H. Three-dimensional multiple-relaxation-time discrete Boltzmann model of compressible reactive flows

15:40 - 16:00 *Coffee Break*

16:00 - 16:20 Giroto I., van Woensel J.P., Aliei S., Toschi F. Droplets tracking in dense emulsions

16:20 - 16:40 Guskova M., Shchur L. Drop chain simulation with Lattice Boltzmann method

Sukhov A., Hubert M., Grosjean G., Trosman O., Ziegler S., Collard Y., Vandewalle N., Smith A.S., Harting J. Regimes of motion of triangular magnetocapillary swimmers

Aouane O., Harting J. Inertial migration of particles in suspension in Poiseuille and Womersley flows

16:40 - 17:00

Christianto R., Semprebon C.,  
Kusumaatmaja H.

Modelling Droplet Dynamics on a Fibre

**WEDNESDAY - 15th September***Plenary talk - virtual room Leone*

9:40 - 10:20

Timm Krüger - Formation and stability of pairs of soft particles in inertial microfluidics - a numerical investigation

*Technical Session 7 - Biofluidics - virtual room Leone*

10:20 - 10:40

Guglietta F., Behr M., Falcucci G.,  
Sbraglia M.On the effect of membrane viscosity on  
loading and relaxation dynamics for a single  
red blood cell

10:40 - 11:00

Li Z., Oger G., Le Touzé D.Coupling of LBM and FEM with the implicit  
IBM for numerical simulation of blood flows  
through the aortic valve*Technical Session 8 - Advanced Method 3 - virtual room Palma*Simeoni D., L. Bazzanini, A.  
Gabbana, S. Succi, R. Tripicciono

Lattice Boltzmann Method for Rarefied Gases

Bocanegra J.A., Misale M., Borelli  
D.

Lattice Boltzmann applications to acoustics

11:00 - 11:20

*Coffee Break*

11:20 - 11:40

Chopard B., Li S., Lätt J.Continuum model for flow diverting stents in  
3D patient-specific simulations of intracranial  
aneurysms

11:40 - 12:00

Škardová K., Eichler P., Oberhuber  
T., Fučík R.Investigation of Blood-Like Fluid Flow in  
Stenotic Arteries using the Lattice Boltzmann  
MethodPadrone J., Venturi S., Di Francesco  
S.Development of a multilayer cascaded and  
cumulant CO based lattice Boltzmann model  
for shallow water flowsRipoll M., Roca-Bonet S.Self-phoretic swimmers: Hydrodynamic vs.  
Phoretic Brownian dynamics simulations

12:00 - 12:20

Coelho R.C.V., Telo da Gama M.M.,  
Araújo N.A.M.Effects of elastic anisotropy and active  
anchoring in active nematicsFalcucci G., Amati G., Fanelli P.,  
Krastev V.K., Succi S.Euplectella aspergillum meets the Lattice  
Boltzmann Method: simulating the real life  
conditions of a living organism

12:20 - 15:00

*Lunch Break**Technical Session 9 - Advances Methods 4 - virtual room Leone*

15:00 - 15:20

Lätt J., Marson F., de Santana Neto  
J.P., Thyagarajan K., Coreixas C.,  
Chopard B.

From CPU to GPU in 80 days

15:20 - 15:40

Lehmann M., Krause M.J., Amati  
G., Gekle S.On the impact of FP64, FP32 and FP16  
floating-point precision on accuracy and  
performance of lattice Boltzmann method  
simulations

15:40 - 16:00

Bedrunka M.C., Wilde D., Krämer  
A., Reith D., Foysi H.Neural Lattice Boltzmann Method for  
Machine-Learning Enhanced Simulations

16:00 - 16:20

*Coffee Break*

16:20 - 16:40

Levchenko V.D., Perepelkina A.,  
Zakirov A.Heterogenous LBM Simulation Code with  
LRnLA Algorithms

16:40 - 17:00	<u>Wissocq G.</u> , Sagaut P.	Hydrodynamic limits and numerical errors of isothermal lattice Boltzmann scheme
17:00 - 17:20	<u>Falcucci G.</u> , Ubertini S.	Lattice Boltzmann Method and Nuclear Fusion: report on a 25-year marriage
17:20 - 17:40	<u>Singh S.</u>	A class of numerical algorithm constructed along the lines of Lattice Boltzmann method for dilute to semi-dilute polymer solutions

## THURSDAY - 16th September

### *Plenary talk - virtual room Leone*

9:40 - 10:20 Matteo Lulli - A Mesoscopic Perspective on the Tolman Length

#### *Technical Session 10 - Advanced Methods 5 - virtual room Leone*

10:20 - 10:40	Luo Kai H., <u>Wang G.</u> , Fei L.	Study of droplet impingement on surfaces using a unified lattice Boltzmann method
10:40 - 11:00	<u>Zipunova E.</u> , Perepelkina A., Zakirov A	On the Construction of Mass-conserving Schemes for LBM with Interpolation of the Off-grid Values

#### *Technical Session 11 - Complex Flows 2 - virtual room Palma*

<u>Eichler P.</u> , Fuka V., Fučík R.	Direct numerical simulations of turbulent boundary layer fluid flow above rough surfaces using lattice Boltzmann method
<u>Otomo H.</u> , Salazar-Tio R., Yang J., Fan H., Fager A., Crouse B., Zhang R., Chen H.	An under-resolved-simulation approach for multi-component fluid flows in multi-scale porous structures

11:00 - 11:20 *Coffee Break*

11:20 - 11:40	<u>Perepelkina A.</u> , Zipunova E., Levchenko V.	Fast Implementation of Moment Space Conversions in Lattice Boltzmann Method Codes
11:40 - 12:00	<u>Seekins N.</u> , Wagner A.	Faster integer lattice gases
12:00 - 12:20	<u>Saadat M.H.</u> , Hosseini S.A., Dorschner B., Karlin I.V.	Extended lattice Boltzmann for compressible turbulence

<u>Padrone J.</u> , Venturi S., Di Francesco S.	Modelling flood events in Venice Lagoon with a cumulant CO lattice Boltzmann shallow water model
<u>Qi K.</u> , Fonte C.P., Pagonabarraga I.	Investigation of the exfoliation of multilayer graphene in shear flows: a Lattice Boltzmann study
<u>Antunes G.</u> , Malgaretti P., Harting J., Dietrich S.	Advection-induced pumping and mixing in active microchannels

12:20 - 14:40 *Lunch Break*

### *Plenary talk - virtual room Leone*

14:40 - 15:20 *Adriano Tiribocchi* - Computational modeling of multiple emulsions in microfluidic channels

#### *Technical Session 12 - Boundary conditions - virtual room Leone*

15:20 - 15:40	<u>Schwarzmeier C.</u> , Rude U.	Analysis and comparison of free surface lattice Boltzmann boundary conditions
15:40 - 16:00	<u>Marson F.</u> , Silva G., Chopard B., Lätt J., Ginzburg I.	Unified formulation, analysis, and improvement of all link-wise Dirichlet velocity boundary schemes

16:00 - 16:20 *Coffee Break*

16:20 - 16:40	<u>Klaß F.</u> , A. Gabbana, A. Bartel	Non-Reflecting Boundary Conditions for multispeed Lattice Boltzmann Methods
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## FRIDAY - 17th September

### *Plenary talk - virtual room Leone*

9:20 - 10:00

Emanuela Zaccarelli - Modelling microgels in computer simulations

### *Technical Session 13 - Soft Matter 2 - virtual room Leone*

10:00 - 10:20

Sbragaglia M., Pelusi F., Scagliarini A., Bernaschi M., Benzi R., Succi S.

Mesoscale investigations on convective heat transfer in concentrated emulsions: finite-size effects and "heat avalanches"

10:20 - 10:40

Kulyk N., Sega M., Harting J.

Thermal reactive multiphase lattice Boltzmann model

10:40 - 11:00

*Coffee Break*

11:00 - 11:20

Yang L., Sega M., Harting J.

Lattice Boltzmann study on the rheological behavior of particle suspension with capillary interaction

11:20 - 11:40

Hosseini S.A., Dorschner B., Karlin I.V.

Consistent lattice Boltzmann models for isothermal two-phase flow simulations

11:40 - 12:00

Silva D., Telo da Gama M.M., Araújo N.A.M., Coelho R.C.V.

Brownian motion of deformable capsules in a fluid

12:00 - 12:20

*Closing Speech* - Giacomo Falcucci