ICTP SAIFR | International Centre for Theoretical Physics
South American Institute for Fundamental Research

	1st week					
	Monday, 13	Tuesday, 14	Wednesday, 15	Thursday, 16	Friday, 17	Saturday, 18
8.30-9.00am	Registration					
9.00-9.30am			Study hours	SP2		
9:30-10am	Welcome					
10-11am	CF1	AL2 (at 10:30)	Study hours	FT1	FT3	Tal Danino
11-12am	CF2	LB1 (at 11:30)		FB3	SP3	
12-2pm	lunch	lunch (at 12:30)	lunch	lunch	lunch	
2-3pm	CF3 (video)	RE1 (at 2:30) (video)	**IFT-Colloquium**	LB2	Posters	
3-4pm	AL1	SP1 (at 3:30)	RE2 (at 3:30)	LB3		
4-4:30	coffee	coffee (at 5:00)		coffee	coffee	coffee
4:30-6pm	PD	AL3 (at 5:30) & PD (at 6:30)	FB1 (at 4:30)	FT2		Study hours
6-7pm	Study hours		FB2 (at 5:30)	PD + lab FB/SP (at 5:30)	Study hours	

1) Students are expected to deliver their reports and home-works from the first week before the GP.

	2nd week				
	Monday, 20	Tuesday, 21	Wednesday, 22	Thursday, 23	Friday, 24
9-10am	RE3				
10-11am	RE4	JK1	FD1	FD2	AR2
11-12am	GP-Week1	JK2	AR1	Greg1	Greg2
12-2pm	lunch	lunch	lunch	lunch	lunch
2-3pm	Opening & HG1	GW	**IFT-Colloquium**	GW	AR3-FD3
3-4pm	HG2	GW	Discussion	GW	GP-AR
4-4:30	coffee	coffee	coffee	coffee	coffee
4:30-6pm	GW	GP-HG	GP-JK	GP-FD	GP-Greg
6 - 7 pm	PD	PD	PD	Posters	Closing

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Students are expected to deliver individual reports/home-works of materials presented up to Thursday at lunch time on Friday.

PD: Project discussion (a group of students meet with one Lecturer to discuss their own projects and/or make specific questions)
GP: Groups presentations (students summarize the PD sections. One short presentation per group - 10-15 minutes)
GW: group (or individual) study of materials

First Week
LAB (with FB and SP)
Shaker Chuck Farah (CF)
CF1: Protein structure basics
CF2: Protein structure determination methods
CF3: The diverse world of proteins

Aatto Laaksonen (AL)
AL 1: Statistical Mechanics of soft and biological matter and modern computer modeling and simulation techniques
AL 2: Multi-scale computer simulations of structure and dynamics in canonical and non-canonical DNA. Modeling of DNA in chromatin.
AL 3: Coarse-grained simulations of structure and dynamics circular DNA. The effects from electrostatic interactions and importance of large cut-offs

Leandro Barbosa (LB)
LB 1: Theoretical bases of Small-Angle Scattering
LB 2: Examples of Soft Matter interaction evidenced by SAXS
LB 3: Using SAXS to probe protein-protein and protein-membrane interaction

Ralf Eichhorn (RE)
RE 1: Brownian motion and diffusion
RE 2: The electric double layer
RE 3: Motion in an electric field: Helmholtz-Smoluchowski equation
RE 4: General phoretic transport phenomena

Fernando Luís Barroso da Silva (FB)
FB 1: Basic physical chemistry: measuring electrostatic properties in biomolecular systems
FB 2: Historical models and constant-pH computational methods
FB 3: Protein complexation, application in (bio)nanotechnological system and their peculiar physics

Samuela Pasquali (SP)
SP 1: DNA and RNA presentation and coarse-grained modeling challenges
SP 2: Empirical force fields
SP 3: HiRE-RNA + electrostatics

Frederico W. Tavares (FT)
FT 1: Classical Poisson-Boltzmann equation and DLVO Theory. Thermodynamics properties related to ion specificity, Hofmeister effects, size and electrostatic correlations.
FT 2: Introduction to Classical Density Functional Theory. Modified Poisson-Boltzmann equation.
FT 3: Application to protein adsorption and micellization as a function of ion concentration, pH, ion type, and temperature.

Second Week
Fernando Duda (FD)
Stimuli-responsive hydrogels

Ana Ribeiro (AR)
A biomimetic approach: from tissue regeneration to nanotoxicological models

Hermes Gadelha (HG)
Cell biology and its mathematical tales, from the cell's movement to its physiology

Greg Huber (Greg)
Terasaki Ramps: A Glimpse into the Geometrical Architecture of the Cell

Jair Koiller (JK)
A gentle introduction to the mathematics of microswimming