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			LB2	FB2		
9:30-10am	Welcome					
10-11am	CF1	AL2 (at 10:30)	RE2	FT1	FT3	Tal Danino
11-12am	CF2	LB1 (at 11:30)	FB1	FB3	SP3	
12-2pm	lunch	lunch (at 12:30)	lunch	lunch	lunch	
2-3pm	CF3	RE1	**IFT-Colloquium**	SP2	Posters	
3-4pm	AL1	SP1	LB3	FT2		
4-4:30	coffee	coffee		coffee	coffee	coffee
4:30-6pm	PD	AL3 & PD (at 5:30)	PD	PD + lab FB/SP	PD + lab FB/SP	Study hours
6-7pm	Study hours		Study hours	Study hours	Study hours	

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

2) The lectures on Monday (March 13) and Tuesday (March 14) morning wil be at the NCC Auditorium (Ground floor)

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