

Minicourse on Numerical Relativity

March 28 – April 1

Start	End	Monday, March 28	Tuesday, March 29	Wednesday, March 30	Thursday, March 31	Friday, April 1
08:30	09:30	Registration				
09:30	11:00	Introduction <i>L. Lehner</i> FD, basics, boundaries, hyperbolicity <i>V. Paschalidis</i>	Decomposition of Einstein, ADM <i>F. Pretorius</i>	Hydro equations <i>L. Lehner</i>	Ideal MHD <i>V. Paschalidis</i>	Adaptive mesh refinement <i>F. Pretorius</i>
11:00	11:30	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK
11:30	13:00	Basics; Ex: Minkowski wave eqn. <i>L. Lehner</i>	BSSN/GH formulations and constraint damping <i>F. Pretorius</i>	Num. methods for hydro, HRSC <i>V. Paschalidis</i>	Force-free equations & methods <i>L. Lehner</i>	Characteristic formulations and applications <i>L. Lehner</i>
13:00	14:30	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
14:30	19:00	Pre-discussion: tools, visualization, and related. Lab: 1D wave eqn, Maxwell (optional)	Lab: Wave eqn on a BH background, spherical symmetry. Dynamical background (optional) Discussion: Turbulence and fluid/gravity correspondence in AdS/CFT <i>L. Lehner</i>	IFT-Colloquium: The Dynamical Strong-field Regime of General Relativity <i>F. Pretorius</i> (at 2 pm) Lab: Burgers eqn (FD, HRSC) Discussion: Gravity Waves <i>F. Pretorius</i>	Lab: Relativistic hydro, FF (optional) Discussion : gauges + others <i>V. Paschalidis</i>	Lab: wrap up of projects Discussion : Round table of future problems & opportunities