

Powerweek schedule July 2012

Topic: Introduction to String Theory & Modern Applications

Matthias Kaminski (University of Washington)

Monday

09:00-10:00 Lecture I: Overview of String Theory & Modern Applications

Break & Free discussion

10:30-11:30 Lecture II: Bosonic String Theory (open/closed string, conformal field theory)

11:30-12:30 Hands-on tasks

Lunch

14:00-17:00 Hands-on tasks

17:00-19:00 Discussion of solutions

Tuesday

09:00-10:00 Lecture III: Bosonic String Theory (Polyakov path integral, string scattering amplitudes)

Break & Free discussion

10:30-11:30 Lecture IV: Bosonic String Theory (string spectrum, quantization, string S-matrix)

11:30-12:30 Hands-on tasks

Lunch

14:00-17:00 Hands-on tasks

17:00-19:00 Discussion of solutions

Wednesday

09:00-10:00 Lecture V: Bosonic String Theory (moduli, tree-level amplitudes)

Break & Free discussion

10:30-11:30 Lecture VI: Bosonic String Theory (one-loop amplitudes, toric compactification, T-duality, D-branes)

11:30-12:30 Hands-on tasks

Lunch

14:00-15:00 Hands-on tasks

15:00-16:00 Discussion

16:00-19:00 Group projects (higher spin holography, AdS/CMT, scattering amplitudes, dS/CFT, string phenomenology)

Thursday

09:00-10:00 Lecture VII: Superstring Theory (type I and II, D-branes, Calabi-Yau compactification, string geometry, flux compactification)

Break & Free discussion

10:30-11:30 Lecture VIII: Superstring Theory (string dualities, M-theory)

11:30-12:30 Hands-on tasks

Lunch

14:00-17:00 Hands-on tasks

17:00-19:00 Discussion of solutions

Friday

09:00-10:00 Lecture IX: Gauge/gravity duality & Black holes (gauge/gravity conjecture, extensions of the conjecture, applications)

Break & Free discussion

10:30-11:30 Lecture X: Gauge/gravity duality & Black holes (applications of gauge/gravity)

11:30-12:30 Hands-on tasks

Lunch

14:00-17:00 Hands-on tasks

17:00-19:00 Discussion of solutions

Saturday

09:00-13:00 Group projects: presentations & discussion (group hand-outs due today)

Sunday

Travel to Munich

Monday and Tuesday

Participate in conference "Strings 2012" in Munich (<http://strings2012.mpp.mpg.de/>)