



# SA CERN summer school 2018

run by the Center of Theoretical and Mathematical Physics at UCT

The school is aimed at students in South Africa with an interest in particle physics, both theoretical and experimental. We are aiming at students that have completed at least a 3 year degree in physics, including MSc and PhD students.

Come join us for a furious two weeks of learning, discussions and interactions.

**Dates:** Mon 19 - Friday 30 November 2018

**Place:** Department of Physics, University of Cape Town

**Location:** R.W. James building, University of Cape Town



University of Cape Town - Department of Physics  
**CTMP**  
Centre for Theoretical and Mathematical Physics



**iThemba LABS**  
Laboratory for Accelerator Based Sciences



DEPARTMENT OF  
**PHYSICS**  
UNIVERSITY OF CAPE TOWN

# 1 Week one: Nov 19-23

**QM/Rel Prof. Cesareo Dominguez** (University of Cape Town) “From quantum mechanics to relativity”

**FT Prof. Cesareo Dominguez** (University of Cape Town) “A gentle introduction to field theory”

**LB Prof. Ulrich Heinz** (The Ohio State University) “ The physics of the Little Bang”

**TH SEM Prof. Ulrich Heinz** (The Ohio State University) Faculty seminar:

“Quark-Gluon Plasma: A New (Old) Type of Liquid at Ultra-High Temperature and Density”

**SM Prof. John Ellis** (King’s Colledge London, CERN) “The physics of the standard model”

TUT Tutorials

Monday and Tuesday morning will follow a split programme: While the postgraduate students will attend the SA CERN 10 year anniversary at iThemba Labs, the undergraduates will attend a preparatory course on Monday at UCT and a lab tour at iThemba Labs on Tuesday morning.

Bus transport from UCT to iThemba Labs will be provided, leaving from the Jammie shuttle bus stop at Tugwell Hall residence (Baxter Rd, Rosebank, Cape Town, 7700) on Tuesday at 7:30. The bus will be provided by Eljosa Travel and Tours.

	Mo (PG)	Mo (UG)	Tue	Wed	Thu	Fri
08:00-10:00	SA CERN		SA CERN (PG)	LB	LB	FT
tea		arrival/tea				
10:30-12:30		QM/Rel	iThemba tour (UG)	FT	SM	SM
lunch						
13:30-15:30		QM/Rel	FT	SM	TH SEM FT	LB
tea						
16:00-18:00		QM/Rel		TUT	FT TUT	TUT
				Braai		

## 2 Week two: Nov 26-30

**FT Prof. Cesareo Dominguez** (University of Cape Town) “A gentle introduction to field theory”

**LB Prof. Ulrich Heinz** (The Ohio State University) “ The physics of the Little Bang”

**GT Prof. Einan Gardi** (Higgs Institute, Edinburgh) “Gauge theories”

**MQFT Dr. Alexey Vladimirov** (University of Regensburg) “Modern quantum field theory”

**EXP Dr. Benjamin Dönigus** (Johann-Wolfgang-Goethe Univ. Frankfurt) “Experimental heavy ion physics”

**EXP SEM Dr. Benjamin Dönigus** (Johann-Wolfgang-Goethe Univ. Frankfurt) Physics colloquium:  
“Production of (anti-)matter and exotics at the LHC “

TUT Tutorials

	Mo 26	Tue 27	Wed 28	Thu 29	Fri 30
08:30-10:30	FT	MQFT	LB	GT	GT
tea					
10:30-12:30	GT	LB	MQFT	MQFT	MQFT
lunch					
13:30-15:30	LB	GT	EXP SEM MQFT	GT	EXP
tea					
16:00-18:00	TUT	TUT	MQFT TUT	TUT	