

concentrations is basically predictable many centuries into the future. The limits of predictability in this case are governed by the inherent (as yet unpredictable) natural climate variability on these time scales. Natural climate variability also hinders certain attribution of the observed global warming over the last 120 years to the measured 25% increase in CO₂ concentrations. However, recent computations with coupled ocean-atmosphere climate models and application of improved fingerprint methods for signal detection indicate that the probability that the observed climate warming in the last decades is of natural origin is less than 5 %. A review is given of the origin, simulation and prediction of natural climate variability and the prediction and detection of anthropogenic climate change.

** Tea & coffee will be served at 16.00 hrs.*

Monday 17 July

PPE SEMINAR

at 16.30 hrs – Auditorium

Study of $\xi(2230)$ in J/ψ Decays and the Glueball Interpretation of $\xi(2230)$

by Shan JIN / Inst. of High Energy Physics, Beijing

The decays $J/\psi \rightarrow \gamma\pi^+\pi^-$, γK^+K^- , $\gamma p\bar{p}$, and $\gamma K_s^0 K_s^0$ have been studied using about 8×10^6 J/ψ events collected by the BES experiment at the BEBC e^+e^- collider. The existence of $\xi(2230)$ is confirmed in the $J/\psi \rightarrow \gamma K^+K^-$ and $J/\psi \rightarrow \gamma K_s^0 K_s^0$ channels and two new non-strange decay modes $\xi \rightarrow \pi^+\pi^-$, $p\bar{p}$ are found. Combining our results with the upper limit

for the branching ratios for $\xi \rightarrow p\bar{p}$ and $\xi \rightarrow K\bar{K}$ measured by the PS185 experiment, we argue that the distinctive properties of $\xi(2230)$, the flavour symmetric decays and the narrow partial decay widths to $\pi\pi$ and $K\bar{K}$ as well as its copious production in radiative J/ψ decay, would strongly favour the glueball interpretation of $\xi(2230)$.

Thursday 20 July

CERN ASTROPHYSICS SEMINAR

at 16.30 hrs – Auditorium*

The density of the Universe

by M. ROWAN-ROBINSON / Queen Mary College, London

The inflationary scenario, models for the origin of galaxies and large-scale structure, and dynamical estimates of the density of the universe from redshift surveys, all favour a universe close to the critical Einstein-de Sitter model, with the bulk of the universe in the form of non-baryonic (mainly "cold") dark matter. However some recent developments, for example the cluster "baryon catastrophe" and trends in measurements of the Hubble constant, have reawakened interest in low-density universes. What are the prospects for a resolution of this issue and might we now have to abandon the standard model and even, perhaps, inflation ?

** Tea & coffee will be served at 16.00 hrs*

EDUCATION SERVICES EDUCATIFS

ENSEIGNEMENT GÉNÉRAL

Tél. 5811

Jeudi 13 juillet

à 13.00 h – Amphithéâtre

Science pour tous

par Rafel CARRERAS

Reprise le jeudi 26 octobre 1995.

SUMMER STUDENT LECTURES PROGRAMME

<u>Date</u>	<u>Time</u>	<u>Lecturer</u>	<u>Title</u>
<u>Week 28</u>			
<i>Wed. 12 July</i>	09.00	C. Llewellyn Smith	An Introduction to CERN (1/3)
	10.05	C. Llewellyn Smith	An Introduction to CERN (2/3)
	11.10	C. Llewellyn Smith	An Introduction to CERN (3/3)
<i>Thu. 13 July</i>	09.00	L. Foa	Collider Physics (1/6)
	10.05	S. Jarp	Computing at CERN (1/3)
	11.10	A. de Rujula	Introduction to the Fundamental Concepts of Particle Physics (1/4)
<i>Fri. 14 July</i>	09.00	S. Jarp	Computing at CERN (2/3)
	10.05	L. Foa	Collider Physics (2/6)
	11.10	A. de Rujula	Introduction to the Fundamental Concepts of Particle Physics (2/4)

<u>Week 29</u>			
<i>Mon. 17 July</i>	09.00	L. Foa	Collider Physics (3/6)
	10.05	L. Foa	Collider Physics (4/6)
	11.10	A. de Rujula	Introduction to the Fundamental Concepts of Particle Physics (3/4)
	14.00	E. Lillestøl	Basic Concepts in Particle Physics (1/4)*
	15.00	E. Lillestøl	Basic Concepts in Particle Physics (2/4)*
<i>Tue. 18 July</i>	09.00	L. Foa	Collider Physics (5/6)
	10.05	L. Foa	Collider Physics (6/6)
	11.10	A. de Rujula	Introduction to the Fundamental Concepts of Particle Physics (4/4)
	14.00	E. Lillestøl	Basic Concepts in Particle Physics (3/4)*
	15.00	E. Lillestøl	Basic Concepts in Particle Physics (4/4)*
<i>Wed. 19 July</i>	09.00	S. Jarp	Computing at CERN (3/3)
	10.05	H.J. Hilke	Particle Detectors (1/6)
	11.10	H.J. Hilke	Particle Detectors (2/6)
<i>Thu. 20 July</i>	09.00	----	----
	10.05	H.J. Hilke	Particle Detectors (3/6)
	11.10	H.J. Hilke	Particle Detectors (4/6)
<i>Fri. 21 July</i>	09.00	H.J. Hilke	Particle Detectors (5/6)
	10.05	H.J. Hilke	Particle Detectors (6/6)
	11.10	----	----

* For non-physics students

<u>Week 30</u>			
<i>Mon. 24 July</i>	09.00	R. Kleiss	The Standard Model (1/6)
	10.05	R. Kleiss	The Standard Model (2/6)
	11.10	J. Jowett	Particle Accelerators (1/5)
<i>Tue. 25 July</i>	09.00	R. Kleiss	The Standard Model (3/6)
	10.05	R. Kleiss	The Standard Model (4/6)
	11.10	J. Jowett	Particle Accelerators (2/5)
<i>Wed. 26 July</i>	09.00	R. Kleiss	The Standard Model (5/6)
	10.05	R. Kleiss	The Standard Model (6/6)
	11.10	M.W. Krasny	Deep Inelastic Lepton Scattering (1/2)

<i>Thu. 27 July</i>	09.00	J. Schukraft	Heavy Ion Physics at CERN: from SPS to LHC (1/2)
	10.05	E. Auge	CP Violation (1/2)
	11.10	M.W. Krasny	Deep Inelastic Lepton Scattering (2/2)
<i>Fri. 28 July</i>	09.00	J. Jowett	Particle Accelerators (3/5)
	10.05	J. Schukraft	Heavy Ion Physics at CERN: from SPS to LHC (2/2)
	11.10	E. Auge	CP Violation (2/2)

Week 31

<i>Mon. 31 July</i>	09.00	F. James	Neural Computing (1/2)
	10.05	J. Jowett	Particle Accelerators (4/5)
	11.10	----	----
<i>Tue. 1 August</i>	09.00	F. James	Neural Computing (2/2)r
	10.05	J. Jowett	Particle Accelerators (5/5)
	11.10	----	----
<i>Wed. 2 August</i>	09.00	L. Di Lella	Current Problems in Neutrino Physics (1/5)
	10.05	Student Session	----
	11.10	----	----
<i>Thu. 3 August</i>	09.00	L. Di Lella	Current Problems in Neutrino Physics (2/5)
	10.05	J. Knobloch	Off-line Computing from Raw Data to Physics Results (1/3)
	11.10	----	----
<i>Fri. 4 August</i>	09.00	L. Di Lella	Current Problems in Neutrino Physics (3/5)
	10.05	J. Knobloch	Off-line Computing from Raw Data to Physics Results (2/3)
	11.10	----	----

Week 32

<i>Mon. 7 August</i>	09.00	L. Di Lella	Current Problems in Neutrino Physics (4/5)
	10.05	J. Knobloch	Off-line Computing from Raw Data to Physics Results (3/3)
	11.10	S. Dimopoulos	Introduction to Supersymmetry (1/2)
<i>Tue. 8 August</i>	09.00	L. Di Lella	Current Problems in Neutrino Physics (5/5)
	10.05	Ph. Charpentier	Trigger and Data Acquisition (1/3)
	11.10	S. Dimopoulos	Introduction to Supersymmetry (2/2)
<i>Wed. 9 August</i>	09.00	A. Richter	Isolde Physics Overview (1/1)
	10.05	R. Landua	LEAR Physics/ A short Overview (1/1)
	11.10	Ph. Charpentier	Trigger and Data Acquisition (2/3)
<i>Thu. 10 August</i>	09.00	L. Evans	The Large Hadron Collider (1/1)
	10.05	Ph. Charpentier	Trigger and Data Acquisition (3/3)
	11.10	A. Cohen	A Cosmology Primer (1/3)
<i>Fri. 11 August</i>	09.00	----	----
	10.05	----	----
	11.10	A. Cohen	A Cosmology Primer (2/3)

Week 33

<i>Mon. 14 August</i>	09.00	----	----
	10.05	----	----
	11.10	A. Cohen	A Cosmology Primer (3/3)
<i>Tue. 15 August</i>	09.00	Course Review	----
	10.05	Course Review	----
	11.10	Course Review	----