

A synopsis of Higgs-boson phenomenology at one loop in the standard model is presented. Two-loop effects are reported on as far as present knowledge goes. The phenomena are classified according to the number of external particles participating in the interaction. The relevant classes correspond to two-, three-, four- and five-point functions. Two-point functions are the source of indirect evidence for the Higgs boson; three-point functions control its two-body decays and its production through fusion processes at hadron and photon colliders; four-point functions trigger its three-body decays and its associated production with another particle that balances the quantum numbers or serves as a signal; five-point functions mediate Higgs-boson four-body decays and production from intermediate-boson fusion at hadron, ep, and  $e^+e^-$  colliders. In some cases the effects are very significant, both theoretically and phenomenologically. For example, two-loop  $O(G_F^4 M_H^4)$  corrections to the fermionic decay rate of the Higgs boson exceed the one-loop corrections in size already at  $M_H \approx 400$  GeV and indicate an early breakdown of perturbation theory in the Higgs sector.

### Monday 13 June

#### DETECTOR SEMINAR

at 11.00 hrs – ECP Conference Room  
bldg 13/2-005

**Detectors with CsI photocathodes covered by liquid and solid rare gases**

by V. PESKOV / Fermilab

We study the possibility to build detectors with CsI photocathodes covered by liquid and solid rare gases. It was found that the quantum efficiency of CsI photocathodes immersed inside LXe or LKr are almost twice higher than in vacuum and reach the value of 20-35%. We tested also the operation of photocathodes covered by very thin films of liquids and combined to gas detectors. In the case of solid Ar, Kr and Xe, the CsI quantum efficiency could be (depending on the quality of the solid structure) twice higher than in the liquid phase. For example, in solid Xe the quantum efficiency reaches a value of 60-70%. It opens new possibilities in application such as calorimetry, nuclear medicine and astrophysics.

## EDUCATION SERVICES EDUCATIFS

### ENSEIGNEMENT GÉNÉRAL

Tél. 5811

**Jeudi 9 juin**

à 13.00 h – Amphithéâtre

**Science pour tous**

par Rafel CARRERAS

### Monday 13 June

#### PPE SEMINAR

at 16.30 hrs – Auditorium

**Strange particle production in central S+Ag collisions at 200 GeV/nucleon**

by Sonja KABANA / University of Frankfurt

Heavy ion collisions at ultrarelativistic energies offer a novel experimental access to the investigation of the strong interaction. The study of the flavour content of the final state hadrons could help to elucidate the underlying collision dynamics. This talk will focus on recent NA35 results on strange particle ( $\Lambda$ ,  $\bar{\Lambda}$ ,  $K^0$ ,  $K^+$  and  $K^-$ ) production in central S+Ag collisions. Spectra and multiplicities of these particles will be shown and discussed in comparison with other data on strangeness production in p-p, p-nucleus and nucleus-nucleus collisions.

### Tuesday 14 June 1994

#### CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium

**The structure function  $g_1^p$  and the spin content of the nucleon**

by Tjeerd KETEL / NIKHEF and Free University, Amsterdam

### Wednesday 15 June

#### WOLFGANG SCHNELL FEST

at 15.30 hrs – AT Auditorium  
bldg 30, 7<sup>th</sup> floor

15.30 The PS Era – K. Johnsen

15.50 The ISR Era – K. Hübner

16.10 The Genesis of LEP – (To be announced)

16.25 The Construction of LEP – G. Plass

16.40 Linear Collider Studies – U. Amaldi

Information : S. Myers / SL / 3406

### Wednesday 15 June

#### COMPUTING SEMINAR

at 16.00 hrs CN Auditorium  
bldg 31/3-005

**Film: "GEANT steps into the Future"**

by René BRUN / CERN-CN

### ACADEMIC TRAINING

Tel. 3127

#### LECTURE SERIES

**13, 14, 15, 20 & 21 June**

11.00 to 12.00 hrs – Auditorium

**Accelerators and Energy Production**

by C. RUBBIA / CERN-AT

*Postponed*