Status of Optical Package Development

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December 4, 1999
ATLAS Week

Outline of Talk

- Marconi Package
- Taiwan Package
- OSU Package

Marconi Package

- **currently in Phase II of prototyping with passive VCSEL alignment**
- **three packages delivered**
  - ◇ package #0:
    - ◇ PIN wire bond lifted off prior to delivery
    - ◇ VCSELs power delivery meets spec: $> 300\ \mu$W
  - ◇ packages #1 and #2:
    - ◇ PIN functions properly
    - ◇ VCSELs power delivery meets spec: $> 300\ \mu$W
    - ◇ BER below 10^{-9} at 160 μW optical power
- **packages #0 and #1 have been irradiated with $3 \times 10^{14} p/cm^2$ at CERN and awaiting return to Oxford**
- **Pixel group expect 10 packages in January**

Taiwan Package

- **fabricated one package using PCB base plate**
- **one VCSEL not working**
- **one VCSEL is working and power delivery meets spec: $>$ 300 μW**
- **PIN was too big for PCB and crashed**
- **need new PCB layout**
- **expect ATLAS style packages in early January**

OSU Package

- **two packages fabricated using alumina silica have weak power**
- **have solved many technical problems in micro-fabrication**
- **second prototype uses macor**
- **poor adhesion between VCSELs and gold traces**
  - ◇ will use alumina base with thin gold deposition
  - ◇ expect new packages in January