



CENTRE NATIONAL D'ÉTUDES SPATIALES

**WORKSHOP**  
**Laser diodes in space**  
**11-12 May, 2006**  
**IAS -Toulouse - France**



*Centres de Compétence Technique*

# Workshop Program



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- **About CCTs (Centres de Compétence Technique)**
  
- **Session I : Emerging technologies**
  - ◆ Laser diodes: emerging technologies and new materials (LAAS-CNRS)
  - ◆ Antimonide based laser diodes in the 2-2.7 microns wavelength range (CEM2/LPN)
  - ◆ Diode-pumped VECSELs at 852 nm for atomic inertial sensors (IOTA/LPN/CEM2)
  
- **Session II : Laser diodes in space : what components are needed?**
  - ◆ Laser diodes in space: needs expression (CNES)
  - ◆ Development of semiconductor laser devices for space applications (ESA-ESTEC)
  
- **Session III : Manufacturers offer**
  - ◆ Lumics laser diode module qualification (LUMICS)
  - ◆ DFB laser diodes at 852 nm matching Cesium absorption and their use as components for atomic clocks in space (EAGLEYARD)
  - ◆ High-Power Al-Free Active Region ( $\lambda = 852\text{nm}$ ) DFB Laser Diodes for Atomic Clocks and Interferometry Applications (TRT)
  - ◆ Tesat Diode Laser Modules and their qualification (TESAT)

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## ■ Session IV : Qualification strategies

- ◆ Qualification strategy for high reliability submarine 0.98  $\mu\text{m}$  pump laser module (AVANEX)
- ◆ Presentation of the Laser Diode ESCC Specification Working Group activities (ESA-ESTEC)
- ◆ Evaluation and space qualification of laser diodes for ATV-Videometer and PHARAO projects (EADS-SODERN)
- ◆ Fiber Optic Components Qualification for Space Use at IXSpace: example of 980nm Pump Laser Diode (IXSPACE/ASTRIUM/CNES)
- ◆ Results from SMOS qualification program (CONTRAVES/TECNOLOGICA)
- ◆ Tests on the Aladin CW pump diodes (ESA-ESTEC)

## ■ Session V : Reliability

- ◆ Failure mechanisms in semiconductor lasers: 2 decades of failure analysis and failure physics (UNIVERSITY OF CAGLIARI)
- ◆ Statistical approach for long-term lifetime predictions of 1.55  $\mu\text{m}$  laser diodes (IXL)

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### ■ Session VI : Industrial developments

- ◆ Characterisation of Laser diodes at 0.8  $\mu\text{m}$  at EDAS-ASTRIUM (EASD-ASTRIUM)
- ◆ Optoelectronic Module for multi giga bit optical interconnects (ALCATEL ALENIA SPACE)

### ■ Round table

- ◆ Conclusions on diodes qualification status and main issues to be solved.