



# ***ESA-DLR DIAL meeting***

*Estec, 18 November 2005*

# **Meeting Agenda**

- Welcome and Introduction/Presentations (E. Armandillo, ESA-TEC)
- Technical Presentations:
- **German National Activities (9,15-12,30)**
- Wales Airborne Demonstrator, Fix (DLR)
- OPO Laser , Mahnke (DLR)
- Ti:Sapphire Laser and new Garnet lasers, Eichler (TU Berlin)
- Raman Laser, Eichler (TU Berlin)
- -----coffee break-----
- Lidar Reference System based on a High Power Laser , Wagner (U. Hohenheim)
- Mixed Garnet @ 936 nm, Hoffmann (ILT Aachen)
- Cavity Control for high power lasers, Kummer (Astrium-D)
- Generic SWIR sensor GENESIS, Nothaft (AIM-Heilbronn)
- -----lunch break-----
- **ESA Technology Activities (13, 30- 16,45)**
- ESA System Studies:
- WALES Phase A Results, Bezy, ESA-EOP
- Green House Gas Monitoring Study Results, Heliere, ESA-EOP
- 10. ESA TRP Lidar Activities Overview, E. Armandillo (ESA-TEC)
- 11. DIAL laser activities for Wales, Zayer, ESA-TEC
- Garnet Laser activities for Wales, Murphy, ESA-TEC
- Pulsed Laser Source for NIR, Jost, ESA-TEC
- -----coffee break-----
- NIR Detectors + L3CCD for Lidar, Karafolas/Zayer, ESA-TEC
- Frequency Detection Units for DIAL, Murphy, ESA-TEC
- Earth Care Predevelopment Activities, Bezy, ESA-EOP

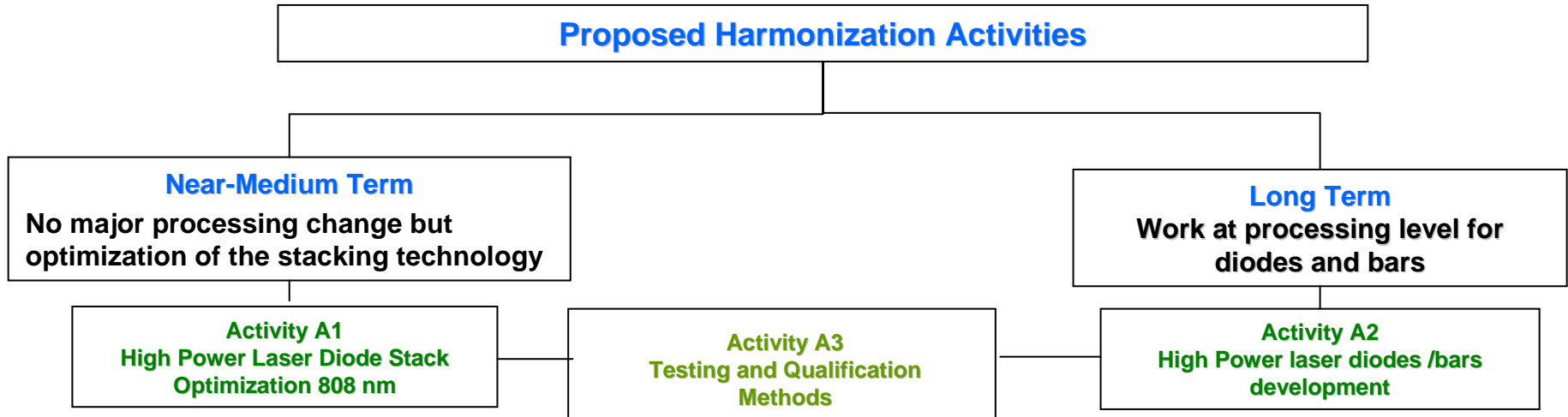
## ***ESA Space Lidar Contributions from D-TEC side***

1. ESA D-TEC and D-EOP resources jointly working to ensure the timely preparation of Lidar Instruments
  - *ADM, Earth Care, next generation of lidars*
2. List of technology activities running or being implemented
  - *New proposed activities not yet approved by IPC (2006) not presented*
  - *Lidar harmonization dossier & roadmap (only as reference info, not covered in this meeting)*

## ESA TRP DIAL-related Technology Developments

Activity Title	2004	2005	2006	Value (Keuro)	Comments
Water Vapour Dial Transmitter, I (Mixed Garnet) (CESI, I)	-----			600	running
Water Vapour DIAL Transmitter II (EADS, D)	-----			600	running
Tuneable Frequency Stabilization Scheme I (CSO, F)	-----			400	running
Tuneable Frequency Stabilization Scheme II (OCN, CH)	-----			400	running
Solid State Phase Conjugation for Nd:YAG Laser	-----			200	running
Efficient Pump Laser Source for Lidar Applications	-----			600	running
L3CCD/EMCCD technology for LIDAR Applications	-----			900+300	Joint EOP/TRP funding
Pulsed Laser Source for NIR	-----			300	ITT
NIR Detectors	-----			400	ITT

# High Power Laser Diodes



# ***Laser Crystals, and Optical Materials***

## **Proposed Harmonization Activities**

B1. Laser Crystal Development

B2. High-Energy Fibers lasers

B3. High Power Laser Optics and Coatings Development

B4. Non-linear Laser Crystal Development for Frequency Conversion

B5. Testing and Qualification Methods for Laser Optical Materials

## **ROM Costs and Funding Scheme**

	Priorities (H, M, L)	Budget (kEuro)		Progr.	Proposed Programme	Proc. Policy		Remark
		Approv.	Additional			Type	Company	
<b>High Power laser Diodes Development for Lidar</b>								
Stacking and Packaging Optimization for High Power QCW Laser Diodes	H	2 x 1000	800	EOEP	GSTP or EOEP	open		2 Activity (2x1 Mau) planned for EarthCare
High Power Laser Diode Development	H		3000		TRP+EOEP+ other	open		TRL 6
Loop Heat pipe Developemnt for HP Laser Liodes	H		500		TRP or EOEP or GSTP			TRL 6
Testing and Qualification Methods	H		500		ECSS + other	open		

# ROM Costs and Funding Scheme

	Priorities (H, M, L)	Budget (kEuro)		Progr.	Proposed Programme	Proc. Policy		Remark
		Approv.	Additional			Type	Company	
<b>Laser Component Development for Lidar</b>								
Laser Crystal Development	H		1000		TRP+GSTP+EOEP+other	open		TRL 5
High Energy Fiber lasers for Lidar Applications	H		800		TRP+GSTP+EOEP+other			TRL 5
High Power Laser Optics and Coatings Development	H		1000		TRP+GSTP+EOEP+other	open		TRL 6
Non-linear Laser Crystal Development for Frequency Conversion	H		1000		TRP+GSTP+EOEP+other	open		TRL 5
Testing and Qualification Methods for Laser Optical Materials	H		500		ECSS + other	open		
<b>TOTAL</b>			2000 9100					
<b>Proposed Funding Breakdown for Program Elements</b>	TRP		1600					
	EOEP	2000	2000					
	GSTP		2000					
	ECSS		1000					
	CTP							
	OTHER		2500					

KEY
Green Funded and running
Orange Funded and in planning
Red New funding request