Karlsruher Institut für Technologie

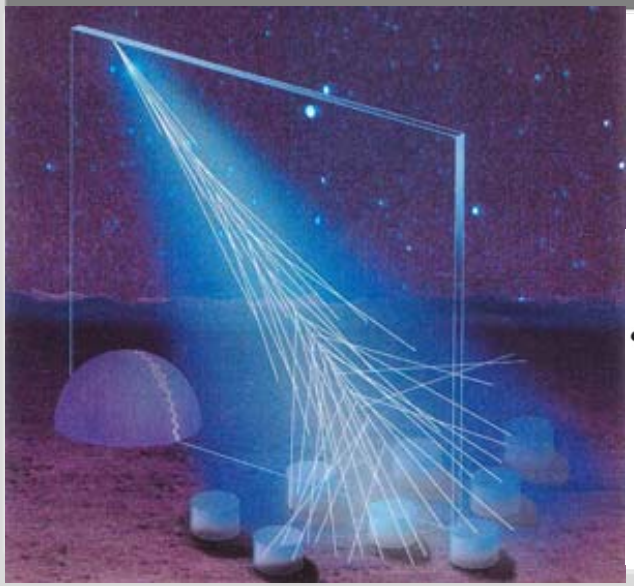
KIT Center Elementary Particle and Astroparticle Physics (KCETA)

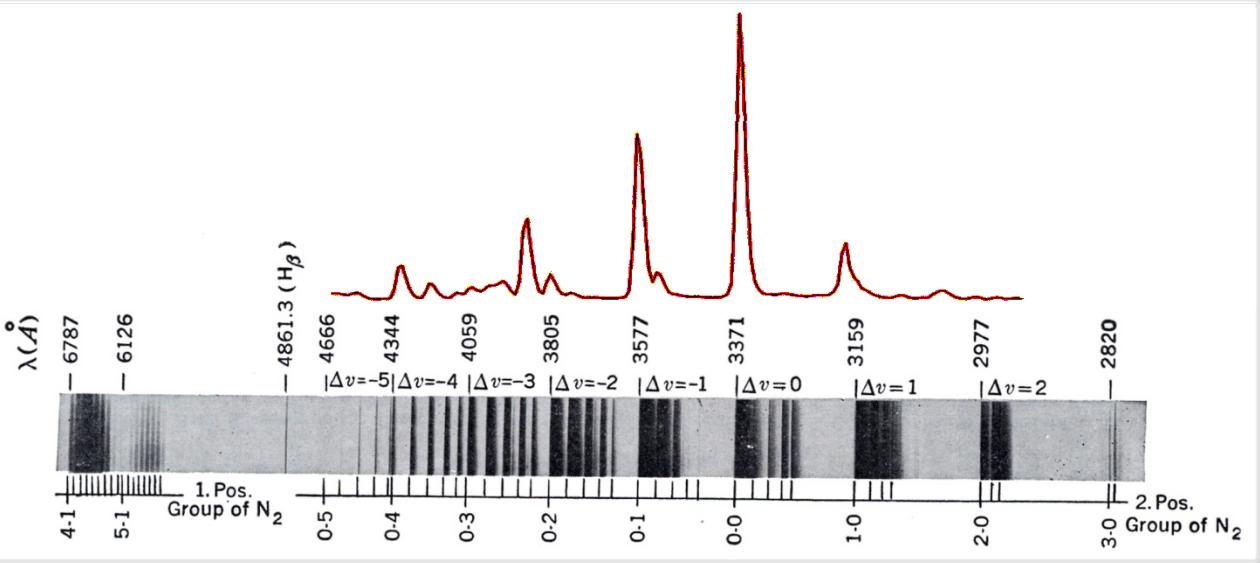
Welcome to the

8th Air Fluorescence Workshop

12. – 14. September 2011

8th Air Fluorescence Workshop, Karlsruhe, 12 – 14 September 2011





Program Overview

12. Sept. 2011
Monday

9:00 - 9:30	*Welcome Address*	
9:30 - 10:00	R. Engel "On the importance of determining the energy scale of UHECR experiments"	Chair: B. Keilhauer
10:00 - 10:30	F. Arqueros "Theoretical evaluation of fluorescence emission and energy deposition in air generated by electrons"	
10:30 - 11:00	*Coffee*	
11:00 - 11:30	P. Privitera "Laboratory Fluorescence Measurements and their Calibration Challenges"	Chair: R. Engel
11:30 - 12:00	A. Ulrich "Two Experimental Techniques Yielding Different Descriptions of Quenching"	
12:00 - 12:30	*Discussion*	
12:30 - 13:45	*Lunch*	
14:00 - 14:30	N. Sakaki "Overview on Measurements of Humidity Quenching"	Chair: A. Ulrich
14:30 - 15:00	M. Fraga "Temperature Dependence of the UV Fluorescence Yield in Nitrogen and in Air"	
15:00 - 15:30	*Discussion*	

Invited presentations to summarize the status of our knowledge

Program Overview

Invited presentations to establish the relationship to Cosmic Ray Investigations

12. Sept. 2011
Monday

16:00 - 16:30	D. Ikeda	"Recent Results from Telescope Array"
16:30 - 17:00	A. Santangelo	"The Extreme Universe Space Mission onboard the JEM-Module of the ISS"
17:00 - 17:30	S. Petrera	"The Pierre Auger Observatory"

Chair: M. Fukushima

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after the session: workshop photo of all particpants

Program Overview

13. Sept. 2011
Tuesday

9:00 - 9:20	P. Gorodetzky "The PHIL project at LAL (Orsay)"	*Chair: F. Arqueros*
9:20 - 9:40	M. Bohacova "Measurements of AIRFLY"	
9:40 - 10:00	T. Waldenmaier "Geant4 Simulation of Energy Deposit in the AirLight Chamber"	
10:00 - 10:30	***Discussion (e.g. about energy deposit in fluorescence chambers)***	
10:30 - 11:00	***Coffee***	
11:00 - 11:20	T. Fujii "Shower Reconstruction with the Telescope Array Fluorescence Detector"	*Chair: S. Petrera*
11:20 - 11:40	Y. Tameda "Measurement of UHECR Mass Composition by TA FD Stereo"	
11:40 - 12:00	J. R. Vazquez "Impact of the Fluorescence Yield selection on the reconstructed shower parameters"	
12:00 - 12:30	***Discussion (e.g. about how to apply the FY to EAS reconstruction)***	

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afternoon: visit of KIT campus north

evening: barbecue

Program Overview

14. Sept. 2011
Wednesday

9:00 - 9:20	T. Tomida "Atmospheric Monitoring for Air Fluorescence Observations in the TA experiment"	*Chair: P. Privitera*
9:20 - 9:40	M. Fukushima "CRAYS: a photometric calibration of TA FD-camera"	
9:40 - 10:00	J. Rosado "Update of the average value of available measurements of the air-fluorescence yield"	
10:00 - 10:30	***Discussion (e.g. about a common fluorescence description)***	
10:30 - 11:00	***Coffee***	
11:00 - 11:20	M. Will "Implementation of GDAS Data in Air Shower Reconstructions of the Pierre Auger Observatory"	*Chair: M. Fraga*
11:20 - 11:40	M. Leigui de Oliveira "MonRAt: a compact telescope for atmospheric radiation"	
11:40 - 12:00	A. Ulrich "Fluorescence studies using low energy electron beam exciation"	
12:00 - 12:30	***Discussion (e.g. about next activities)***	
12:30 - 13:45	***Lunch***	
14:00 - 15:30	***Discussions***	

Wi-Fi access for guests

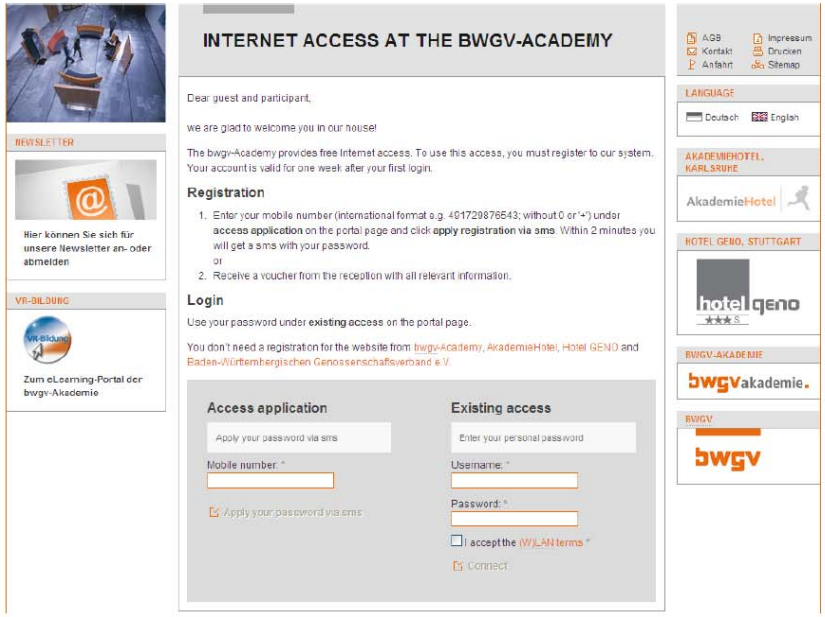
The BWGV Academy provides free Internet access. To use this access, you must register and authenticate to our system. Your account is valid for **1 week** after your first login and will then expire. There are two ways for a user to register and obtain the access code:

❶ Registration on the portal site of BWGV Academy

- Connect your computer to the wireless network **"Hotel".** You will be redirected to the portal site of the BWGV Academy.
- On the portal site you can request the login data via SMS, which will be sent to your mobile phone.
- Your account is valid for **1 week** after your first login and will then expire.
- Before using the **VPN access** you must be authenticated on the portal site.

❷ Registration at the reception

- You will receive a voucher from the reception with all relevant information.



You will have to enter the access code on the portal site under “existing access”, regardless if you received it via SMS or from the reception.
In any case the BWGV Academy (W)LAN terms of use will have to be accepted in order to access the internet.
Basically the access code is a personal identifiers, which may not be passed on.

Workshop Topics / Goals

- Describe the fluorescence light emission in the Earth‘s atmosphere which is induced by extensive air showers.

- Define an absolut fluorescence yield.

take into account

- spectral resolution
- gas composition / quenching
- temperature dependence
- humidity dependence

  ⋮

➢ **Write one common publication**

Questions

- What do we already know quite sure?
- Are our individual results compatible?
- What do we need for an up-to-date fluorescence yield parameterization?
- What are your expectations for the workshop?

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- Are our individual results compatible?
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- An open discussion started.....
- and the main aspects of it can be read at the next slide

Comments

- Do we need to calibrate individual lines or bands ?
  - From measurement point of view, it might be difficult to measure individual lines absolutely. Thus using these as representatives for one band, could cause uncertainties.
- Difficulties to convert measurements in pure N2 to air.
  - So calibration in air needed?
- Temperature-dependent collisional cross sections are important
- Humidity quenching is important
- What is going on with a temperature-dependent cross section for humidity quenching?
- For what accuracy are we aiming for? – We don‘t need to be perfect, but we need a satisfying level from CR-point of view.
- Are the beams and / or the extensive air showers optically dense?
- How to calculate / simulate the energy deposit inside the chambers of fluorescence experiments?