2nd International Cosmic Day - Agenda

Welcome to the International Cosmic Day on September 25, 2013. School groups from across the globe are meeting to ask questions like:

- What are cosmic particles?
- Where do they come from
- How can they be measured?

Many groups worldwide have registered for the event last year. We are looking forward to an interesting cosmic day in 2013 too! Groups of professional scientists, teachers, and students will meet for one day to learn about cosmic rays and carry out an experiment.

This document includes guidelines for groups participating in the event. Institutions are free to implement these guidelines or plan their own events. For example, each institution can invite students or offer advanced training for teachers. Institutions can also choose if the event will be hosted at the school, the university or at another location.

Participating groups receive:

- a placemark in a Google Map displaying participating groups
- data exchange via indico.desy.de/event/icd2013
- a poster to announce the event
- certificates of participation for every student, teacher or organizer
- ICD booklet with all contributions

1 Planning the Day

1.1 Introductory presentation

A researcher should give the introductory presentation. The presenter will choose the appropriate level for the talk. It can cover topics such as:

- What are cosmic rays?
- Who discovered them and how?
- Who is doing research in astroparticle physics today?
  For this, every participating institution is invited to prepare a slide to summarise their own research topics. The slides will be collected and exchanged in the indico timetable.
- How will the group carry out their local experiment?

The presentation can either be given at the beginning of the day, or it can be split in one part in the morning and one part in the afternoon. It can also be complemented by a report from a scientist on a “big” experiment (e.g. IceCube – Wintering at the South Pole).

1.2 Measurement and Analysis

Two questions can be addressed: coincident air shower measurements and the zenith angle distribution of air shower particles. We hope that these choices will enable all interested institutes to participate.

Each group will individually plan and carry out one or both of these measurements. There are no restrictions on the schedule or on the setup used. It is important for the international exchange that at the end of the day the results are summarised and published in a uniform diagram.

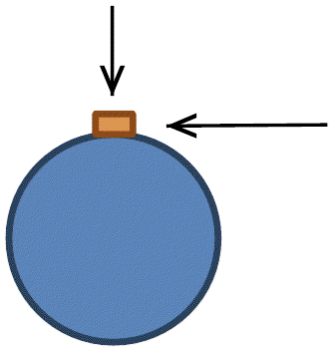
Coincident Air Shower Measurement

The goal is to measure the rate of coincidences between multiple counters as a function of the distance between counters.

The detector must require four-fold coincidence (fewer if your detector does not have four counters). Place the counters on the floor in a rectangular array. Start with a small array that allows each of the four counters to be in contact at one corner. Decide on an integration time and measure how many times the detector records a four-fold coincidence during this time. Move the counters apart from each other (imagine each counter at the corner of a rectangle-the area of the rectangle increases during each trial) and integrate counts for the same interval. Each group decides how many measurements to make. Present your results in a graph and a short concluding paragraph. We can provide additional information on configuring the data acquisition and setting up the experiment.

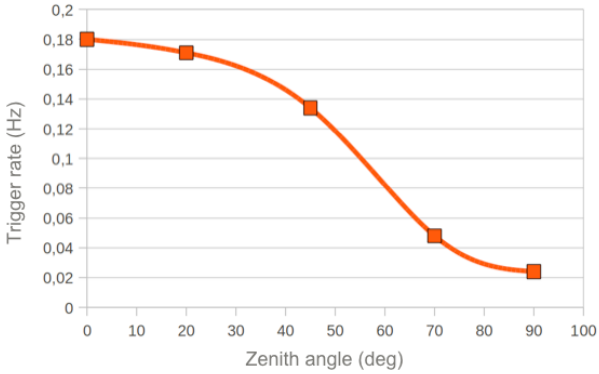
Zenith Angle Distribution of Air Shower Particles

The goal is to measure the rate of air shower particles as a function of the zenith angle.



Convention: particles arriving perpendicular to the Earth's surface have a zenith angle of 0; particles arriving parallel to the surface are assigned a zenith angle of 90 deg.

Each group decides at how many different angles measurements are taken. The results should be presented in a graph and a short concluding paragraph. Additional information on the setup and data acquisition can be provided.



2.3 Discussion

You will find a timetable at indico.desy.de/event/icd2013. In this timetable you can see which groups are active at what time. Over a Skype chat you can get in contact with these other groups and discuss problems or preliminary results.

We will install a Skype account with the name "icd2013". Under "search contact" you can find it and connect with all ICD groups.

When the experimental work is done, we kindly ask everybody to publish their results on the indico. The participants will design a one page PDF with pictures, comments or notes, and their measurement result. It will allow other groups to compare their own results and on the next day all groups around the world can see all results. Also this contribution will be added to the ICD booklet.

3 Closeout

We will send an email to every participant (student, organizer, teacher) with their certificate and the ICD booklet some days after the event.

Therefore we kindly ask you to send us (carolin.schwerdt@desy.de) the names of participants and their email address in a spreadsheet (excel or openoffice document).

first name	name	status (teacher, organizer, student)	email address
International Cosmic	Day	O	icd2013@desy.de

4 Poster

At registration we will send you an announcement poster for the International Cosmic Day, which you can adapt personally. You can complete the adaptable poster with your details and use it to attract attention to the upcoming event at your institution.

We provide you with a MS Word document that can be printed in A3 format and where you should add your institute name and logo and the location of the event. The default font is “Corbel”; if this font is not available to you, you can use “Arial” as a replacement. We also attach our local poster in PDF format as a design reference.

You are invited to post the general announcement poster or your completed poster everywhere where it will attract participants to your local event.

5 ICD Booklet

This year we plan to collect all measurement results as a booklet and distribute it to all participants. The goal is to have all results in one document which can easily be viewed and distributed. The booklet will contain

- the general announcement poster
- a picture of the google map
- 1 page for research topics of every participating institute (if we don't have a slide in indico, we will not generate one for you, so it’s up to you)
- 1 page for results of every participating group (cf. guidelines in 2.3)
- summary
- informations about school projects, relevant links, interesting websites and further material

If you have ideas for the booklet or links to further material please let us know!

6 Checklist

Have you

- registered on indico.desy.de/event/icd2013?
- decided what measurements you will make (angle or shower)?
- posted your completed announcement poster or the general poster?
- checked your placemark in the Google map?
- contributed a slide about research work at your institute (if you want to)?
- sent to carolin.schwerdt@desy.de all participating students + email addresses? This is necessary for generating and distributing the participation certificates.
- checked out the skype account?

Please feel free to contact us in case you have any further questions: icd2013@desy.de