AMS Offline/Analysis Meetings

J. Alcaraz

AMS TIM Meeting, April 2005

Motivation for these meetings

- Reactivate an intermediate forum where one could present studies more analysis-related.
- 2006: global tests, AMS test beam,... We need to be ready to use/debug the official software + ROOT file utilities
- Update some of the very old analyses presented to conferences

Some links and information

- AMS Offline/Analysis e-mail list:

  ams-analysis@cern.ch

- AMS Offline/Analysis Web page:

  http://ams.cern.ch/AMS/Reports/Analysis/

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AMS Software/Analysis Forum

Software/Analysis Meetings

- **Next meeting**
- Previous meetings (+transparencies)

Documentation

- AMSRoot2 analysis documentation
- Introduction to AMS02 Software

Utilities and links

- Old Analysis Web Page (Y. Galaktionov)
- Offline Software Web Page (E. Choumilov, V. Choutko)
- AMS Computing Web Page (A. Klimentov)
- AMS news and announcements for 2005 (L. Barrin)
- Send an e-mail to the list of Software/Analysis people ('ams-analysis@cern.ch')
- Subscribe to the 'ams-analysis' list (if not yet done)

Please contact J. Alcaraz if you want to give a presentation at one of our meetings

31 March 2005

Done

[last update: Thursday 31 March 2005]

AMS Software/Analysis Meeting (use AMS Web password for access)

Date/Time: Thursday 31 March 2005 from 10:00 to 16:00
Location: CERN
Room: 40-5-A01
Chairperson: Alcaraz, J
Description: *Transmitted via VRVS from 10:00 to 16:00*
OCEAN Virtual Room at http://vrvs.org/

Thursday 31 March 2005

10:30	**Software base news** (15') (transparencies)	**Vitaly Choutko , Evgueni Choumilov, ...**
10:45	**AMSRoot developments and tools** (15') (transparencies)	**Juan Alcaraz**
11:00	**Level1 trigger logic for AMS02 (+ studies)** (20') (transparencies)	**Chih-Hsun Lin (+ Paolo Zuccon)**
11:20	**Studies on the stand-alone ECAL trigger** (20') (more information transparencies)	**Stefano Di Falco**
11:40	**MC studies for flight calibration of ECAL** (25') (transparencies)	**Pierre Brun**
12:05	**Antiproton analysis (AMS02)** (25') (transparencies)	**Diego Caraffini**
12:30	**LUNCH** (1h30')	
14:00	**Indirect dark matter detection in the diffuse gamma rays from the Galactic Centre. Prospects for AMS** (25') (more information transparencies)	**Giovanni Lamanna**
14:25	**Cosmic ray propagation and GALPROP tuning** (25') (transparencies)	**Jorge Casaus (for Mercedes Molla)**
14:50	**GALPROP/DARKSUSY develoments** (25') (transparencies)	**Valery Zhukov**
15:15	**Modelling of positron signals for dark matter** (25') (transparencies)	**Francesco Cardano**

First impressions

- As a matter of fact, meetings turned out to be very useful in many aspects:

Exchange of information…

Input signal list

National Central University

- TOF and ACC signals
  - x8 CP (charged particle signals for each side of four TOF planes)
  - x8 CT (charged particle signals for each side of ***centre region*** of four TOF planes)
  - x8 BZ (Z>1 signals for each side of four TOF planes)
  - x16 ACC (ACC signals for each side of eight ACC paddles)
- ECAL signals
  - x2 ECAL-F (Energy info for two sides of ECAL)
  - x2 ECAL-A (Photon info for two sides of ECAL)
- FE Busy signals
- LA trigger, Timer Reset signals …….

Non-Physics triggers

National Central University

- Internal/self trigger:
  - ➔ Adjustable period from 50 μsec (20 kHz) to 1.6 sec (0.625 Hz)
- DSP/command trigger:
  - ➔ A command to CDP of JLV1 can generate a trigger.
- Laser alignment trigger:
  - ➔ Signals from LA modules.

First impressions

- Meetings turned out to be very useful in:

Catalyzing activities...

AMSRoot Documentation

Version:
2.1, Nov 2004, by Juan Alcaraz

INTRODUCTION

This package is a standalone distribution for user analysis of AMS Root files.

A stable version can be downloaded as follows:

cvs -d /afs/cern.ch/exp/ams/Offline/CVS checkout AMSRoot2

The latest version (under development) can be obtained as:

cvs -d :pserver:cvs@pcamscie1.cern.ch:/dataamscie1/CVS checkout AMSRoot2

See also the README file for technical details of the package.

The standard AMS reconstruction output is a ROOT file, in which TTree event structures are built. We have identified several possible modes to analyze these data:

- CINT : an interactive analysis with CINT.
- DYNAMIC: a compiled analysis.
- STATIC : a compiled analysis with a fully static executable.
- TSELECTOR : an analysis (compiled or interpreted) intended for parallel processing on several CPUs.
- PYTHON : an analysis using the Python programming language.

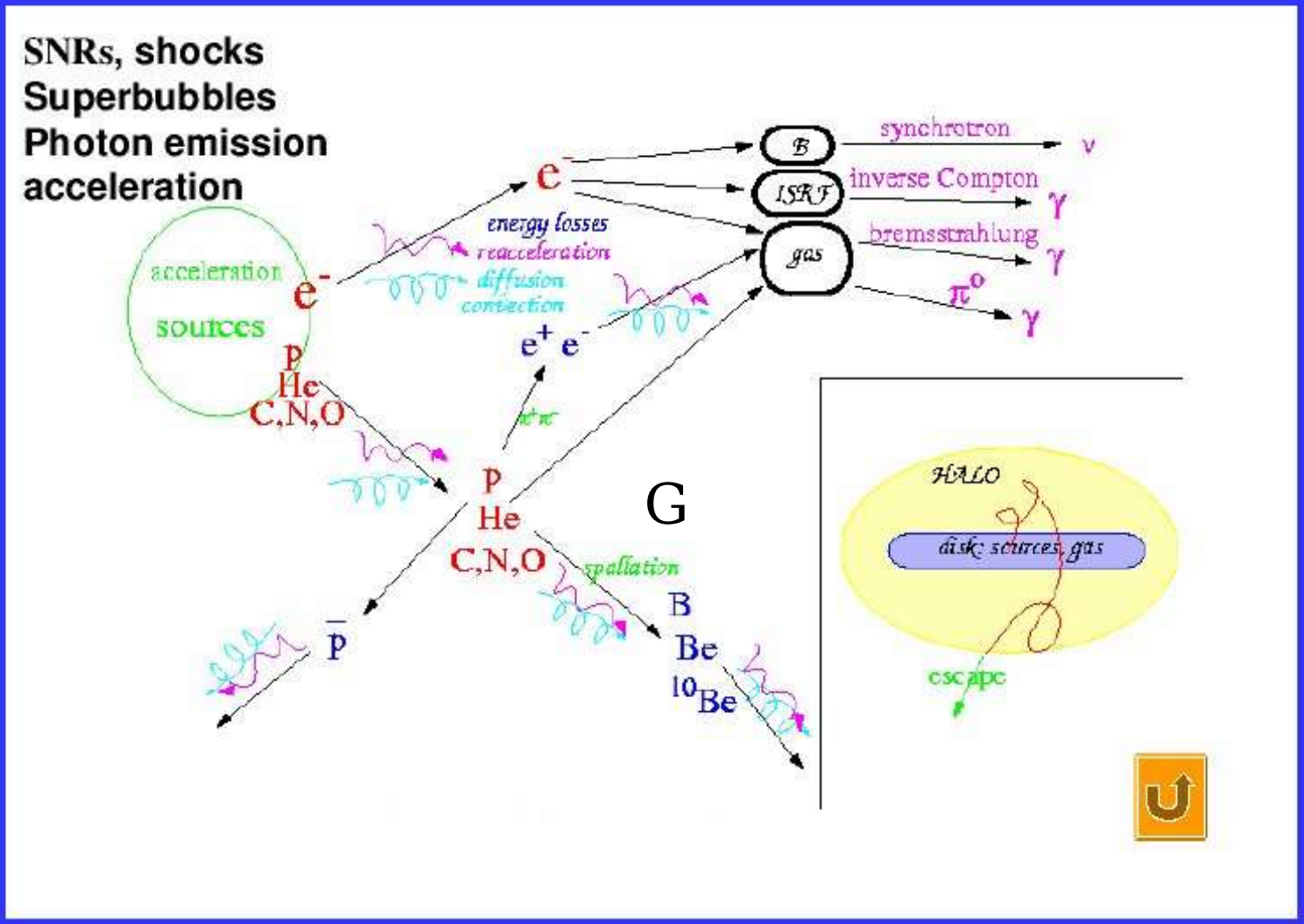
First impressions

- Meetings turned out to be very useful in:

Pointing out delicate points

in analyses...

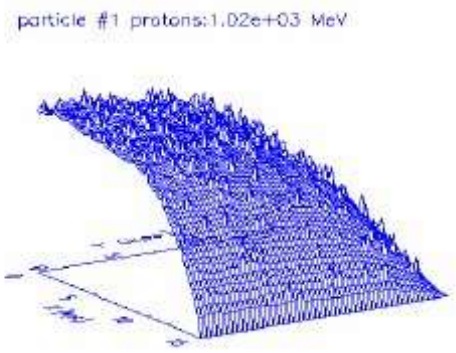
Galprop



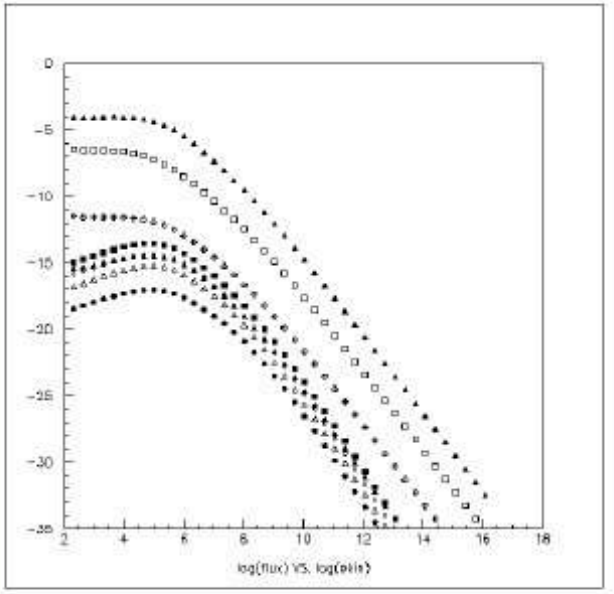
From the web page of Moskalenko

Galprop

It gives as results :
primary nuclei
secondary nuclei spectra (p, e+, B, Be, ...)
diffuse gamma spectra and galactic distribution



The model computes the spectrum of particles in the Galaxy after their propagation



Galprop

- The outputs depend strongly on the input parameters
- It is difficult to reproduce the whole set of data at the same time. It implies to select a different kind of model following what we want to explain.

We are trying to update all possible inputs used by the code in order to find a model able to fit the whole set of data from different particles

We have started with the Galaxy description:

the gas distributions

Summary

- Software/Analysis meetings turned out to be very useful in:
  - Exchanging information
  - Pointing our delicate issues in analyses
  - Catalyzing software/analysis activities

- Plan is to schedule this kind of meetings at CERN every 1-2 months, depending on needs