AMPT

A Multi-Phase Transport Model for Relativistic Heavy Ion Collisions

Main article: Phys.Rev.C72:064901, 2005

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Zhigareva N., 23.04.13

AMPT model

Use:

- HIJING (Heavy Ion Jet Interaction Generator) – for generating the initial conditions

- ZPC (Zhang's Parton Cascade) – for modeling partonic scatterings

- Lund string fragmentation model or quark coalescence model – for hadronization

- ART (A Relativistic Transport model) – for treating hadronic scatterings.

Input parameters

Key parameters:

- sqrt(s), GeV
- N events – total number of events
- A number of target/projectile
- B min, B max – impact parameters (in fm) for all events
- Choice of parton-hadron conversion scenario (AMPT model, AMPT with string and others)
- Parameters for Lund fragmentation
- Quenching flag (on\off)
- K short decay flag, other flags

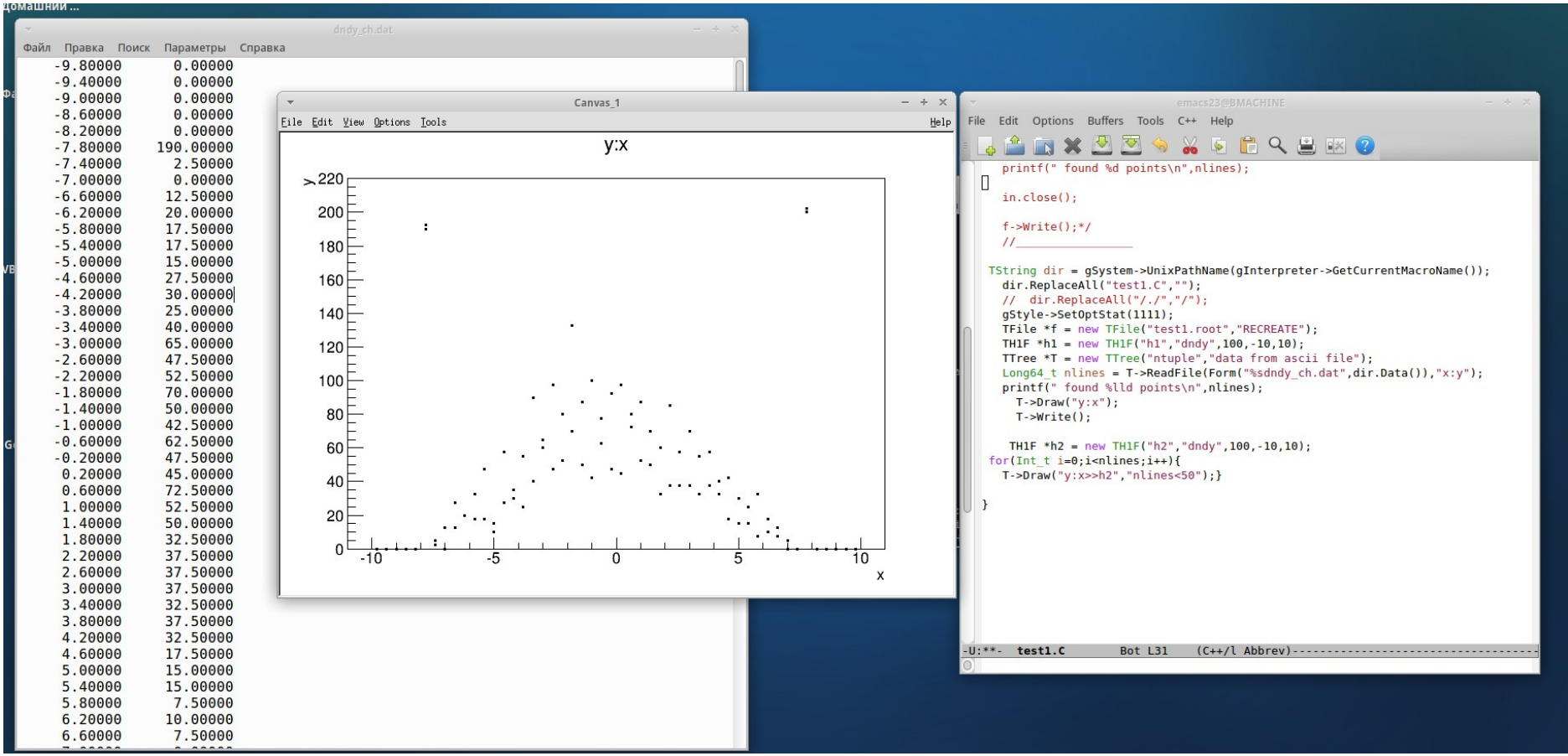
Output parameters

Output file: ampt.dat, containts:

- Event number
- Impact parmeter
- Total number of participants n. in proj.
- PYTHIA particle ID number
- 3 momentum Px,Py,Pz
- Space-time coordinates
- …

Convert files to ROOT

List of files .dat → macro.C for convert .dat to root.C ->working with ROOT structure.



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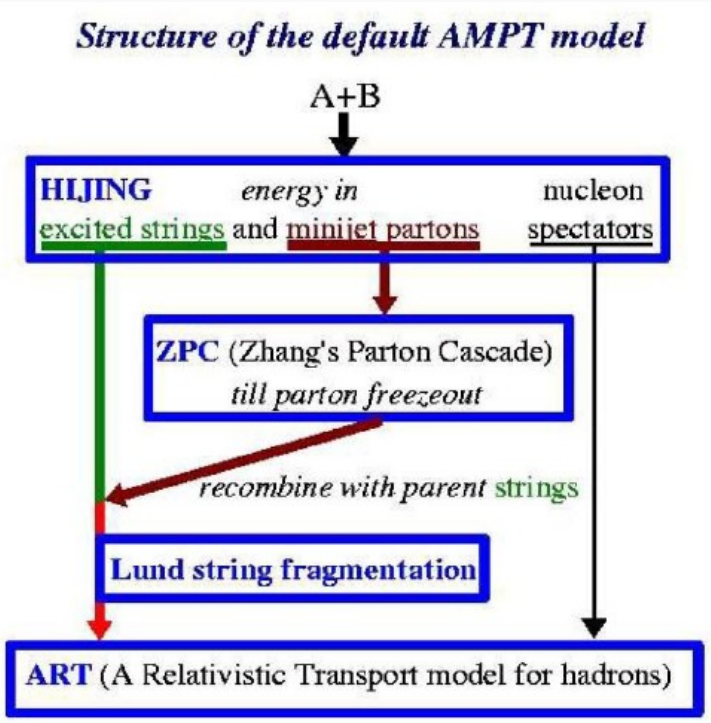
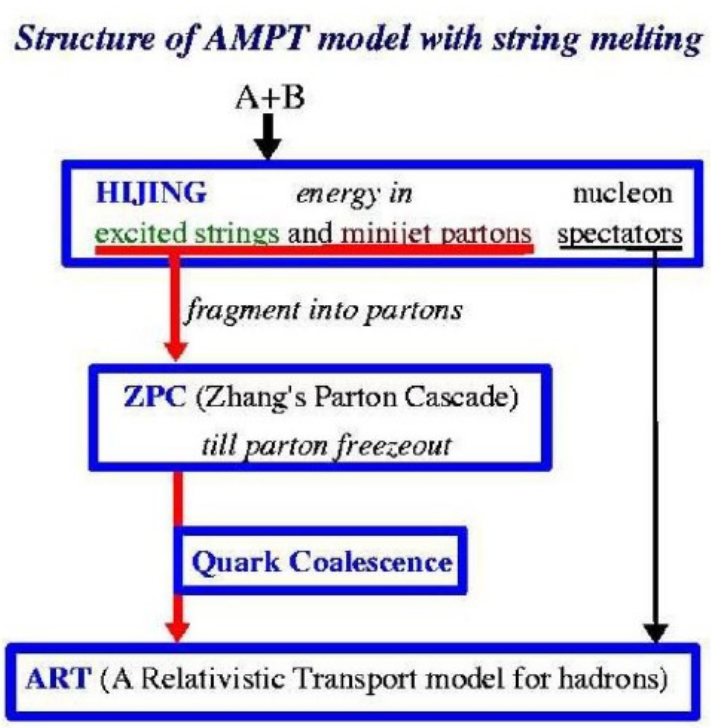
« Pb-Pb collisions at $\sqrt{s_{NN}}=2.76$ TeV in a multiphase transport model » arXiv 1101.2231

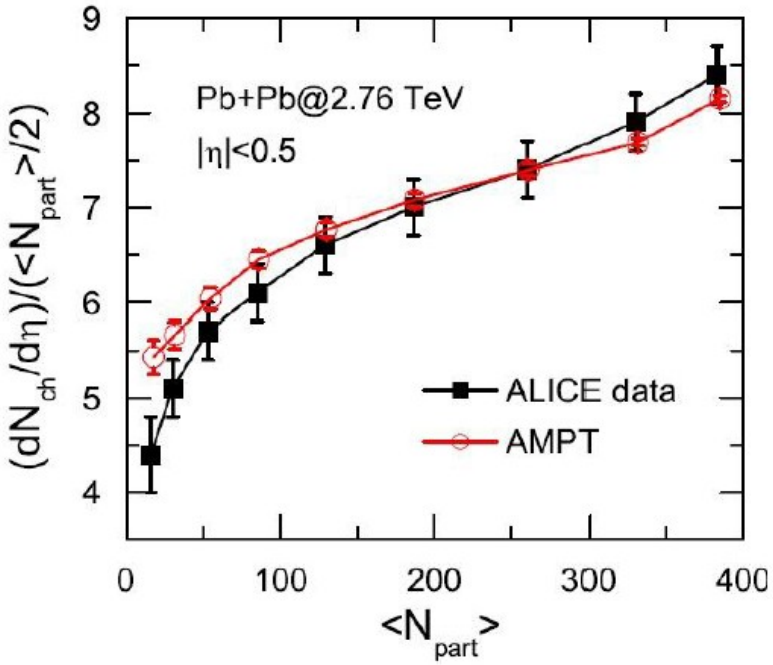
« A Multi-phase transport model for relativistic heavy ion collisions. » Published in Phys.Rev. C72 (2005) 064901 e-Print: nucl-th/0411110

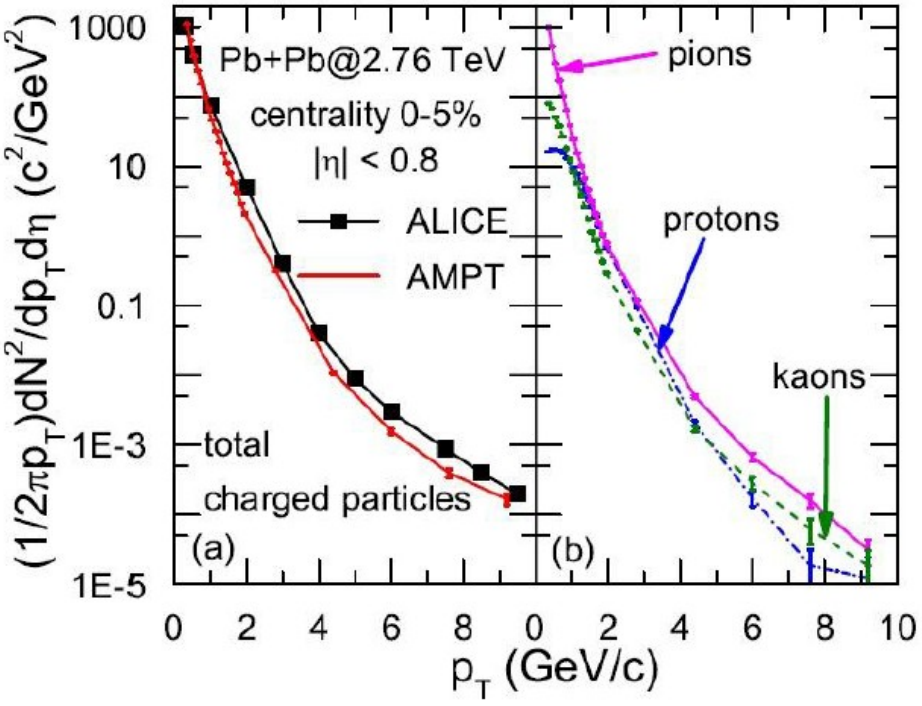
An hybrid model, 2 versions





AMPT





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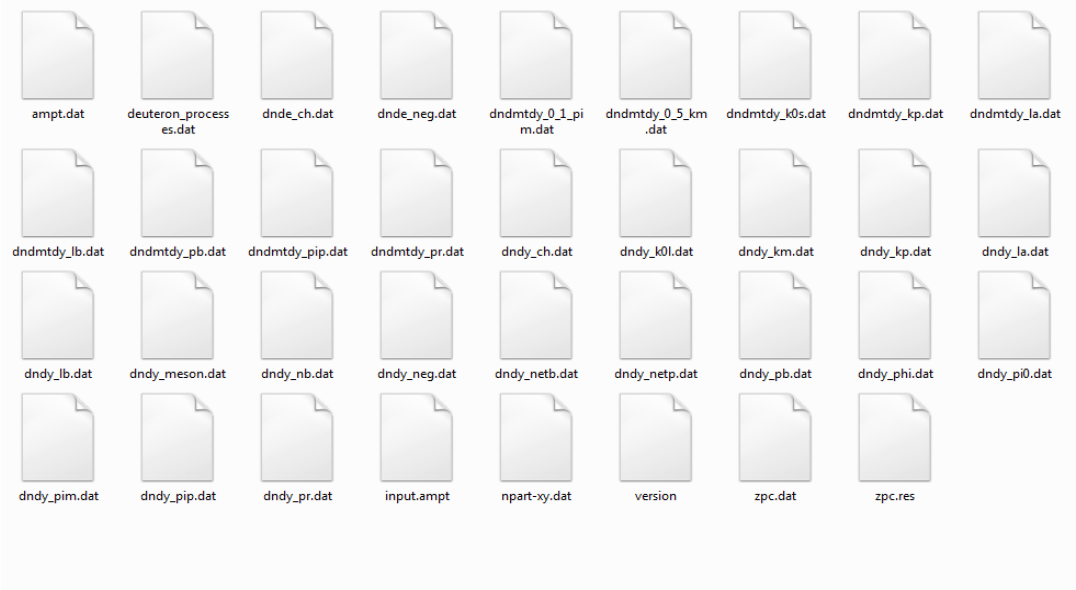
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dndy_pr.dat
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version
zpc.dat
zpc.res