3D WORLDTUBE-NULLCONE EVOLUTION

J. Winicour, University of Pittsburgh

(Talk outline sans figures)

EXTRACTION VS MATCHING

Alternative approaches to obtaining waveforms from the outer boundary.

A. Waveform extraction. Ingredients:
Outer Cauchy boundary with some outgoing radiation condition.
Extraction worldtube.

B. Cauchy Characteristic Matching. Ingredients:
Global Cauchy + Characteristic Data
Matching Boundary with Synchronized Evolution
One of the Notable Contributions of the Alliance
Talks by Gomez, Holvorcem, Papadopoulos

COMPUTATIONAL EXTRACTION

Picture
First step toward Matching
Geometric elements and Data

3D CHARACTERISTIC EVOLUTION

Bishop, Gomez, Lehner, Winicour
Equation structure, weak version
Eth implementation
3D wave propagation

WORLDTUBE DYNAMICS

Conservation conditions
Present gauge conditions:
Constant area
Zero shift
Algebraic lapse

THE WORLDTUBE PROBLEM

Choice of Worldtube - Things to consider

- Global Issues
- Quasilocal Issues
  - Convexity
  - Minimally sliced?
  - Collapsing?

Computational construction?

- Worldtube gauge:
  - Zero shift?
  - What lapse?