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Paper will be presented by S. Zink (put • in abstract)

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A. SUBJECT CATEGORY:

Physics of:

- Diagnosis
- Nuclear Medicine
- Radiation Therapy
- Hyperthermia
- Other _____

Read instructions carefully before typing on this form:

Reducing Computation Times in Calculation of Dose. S. Zink*, M. A. Paciotti, P. A. Berardo, J. N. Bradbury, Los Alamos Scientific Laboratory, Los Alamos, NM 87545; H. Bichsel and A. R. Smith, University of New Mexico Cancer Research and Treatment Center, Albuquerque, NM 87131.

In PIPLAN, the treatment planning code for patients undergoing pion therapy at the Meson Physics facility at Los Alamos, dose is calculated with a particle-track simulation model on a 3-dimensional point grid. The fluence distribution of incident particles for a radiation treatment is approximated by a reduced number of random single particles, for which momenta and trajectories are measured. A finite lateral spread, assumed to be cylindrical Gaussian probability distributions ($\sigma = 0.5$ cm), must be assigned to each particle in order to get finite dose contributions at the grid points. To obtain reduced computation times, particles are selected from the measured distributions so as to produce a smooth fluence distribution over the plane of incidence, thereby achieving a given statistical accuracy with a much smaller number of particles.

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B. Designation:

- Basic
- Clinical
- Technical
- Other _____

C. Mode:

- Poster Presentation
- Oral Presentation
- Either Poster or Oral Presentation

D. Membership

- AAPM
- ASTR
- RSNA
- Other _____

TITLE OF PAPER: Reducing Computation Times in Calculation of Dose.

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