



M. H. Chew & Associates, Inc.
Environmental, Safety and Health
Engineering, Radiation Protection and Nuclear Safety

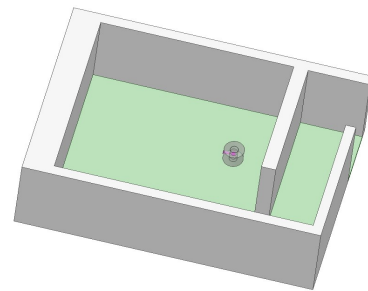
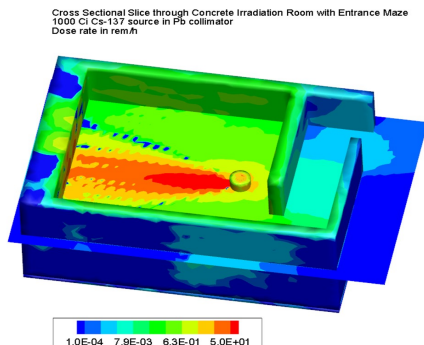
Radiation Shielding and Transport Group

M. H. Chew & Associates, Inc. (CAI) provides radiation transport modeling services, including photon and neutron shielding design, waste characterization, and nuclear criticality calculations. Our group is led by senior engineer Walt Josephson, who has 36 years in the nuclear industry and a wealth of experience with radiation transport modeling. We use the Attila® modeling suite, which includes SpaceClaim®, Attila, MCNP6®, and Tecplot 360™. The Attila modeling suite provides significant benefits to clients:

- Import and mesh client CAD files to speed up MCNP model creation and improve accuracy.
- Use 3-D dose rate results to improve ALARA planning and hazard communication.
- Calculate the dose rate at all points in the mesh, not just a few points from traditional MCNP.
- Propagate photons through thick shields without the trial and error of traditional MCNP.

One of our recent clients said of the Attila suite: “Radiological engineering has now caught up to mechanical engineering.” An example Attila/MCNP dose rate calculation is shown below. A 1000 Ci Cs-137 pinhole irradiator was placed in a room with a maze entrance.

SpaceClaim was used to model the entire space, freeing our analysts from solid modeling via antiquated combinatorial geometry. The SpaceClaim model was imported into Attila and meshed in a manner similar to Finite Element Analysis (FEA) for mechanical engineering.



The forward solver in Attila was executed to generate variance reduction data, and MCNP was executed to calculate the dose rate at each mesh point. Visual clues suggest that dose rates by the entry door could be reduced by thickening a portion of the maze wall near the door, providing a cost-effective solution.

M.H. Chew & Associates, Inc. (CAI) is a professional consulting firm specializing in these and other scientific and technical services. We employ Certified Health Physicists, two former presidents of the Health Physics Society, and the current Editor-In-Chief of the *Health Physics* journal. Some of us maintain active US Department of Energy (DOE) “Q” clearances. We are proven radiological consultants working at DOE national laboratories, nuclear power stations, Fukushima, and CERCLA environmental cleanup projects.

Business Classification/Status

- Small Disadvantaged Minority-Owned Business
- NAICS Codes 541330, 541620, 541690, 541990, 541712, 561320
- FOCI Facility Code – 3940
- DUNS: 361498884

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