

SEDAT GOLUOGLU

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Research and Development Staff

Nuclear Analysis Methods and Applications Group

Nuclear Science and Technology Division

Oak Ridge National Laboratory

EDUCATION

UNIVERSITY OF TENNESSEE, Knoxville, TN

Ph.D., Nuclear Engineering, Nuclear Criticality Safety, August 1997

UNIVERSITY OF TENNESSEE, Knoxville, TN

M.S., Nuclear Engineering, Nuclear Criticality Safety, August 1994

HACETTEPE UNIVERSITY, Ankara, TURKEY

M.S., Nuclear Engineering, Nuclear Criticality Safety, February 1993

HACETTEPE UNIVERSITY, Ankara, TURKEY

B.S., Nuclear Engineering, May 1989

EXPERIENCE

6/2000 – present

OAK RIDGE NATIONAL LABORATORY, Oak Ridge, TN

Research and Development Staff

- Performed calculations to determine potential payload increases in the TRUPACT-II and HALFPACT systems that are used for transporting transuranic nuclear waste from various DOE sites to the WIPP. This study received a citation from DOE NNSA.
- Performed sensitivity and uncertainty analyses of nuclear systems for cross section and code validation. Developed an improved methodology and new related parameters to be used in assessing the area of applicability of benchmarks and the related bias for validation of cross sections and criticality safety code KENO-V.a.
- Performed shielding calculations for a 21-PWR waste package involving use of cermet and graphite as shielding materials.
- Developed SMORES (SCALE Material Optimization and Replacement Sequence) that is intended to be used to develop bounding curves by determining the optimum material configurations.
- Performed criticality calculations of MOX fuel assemblies for transport and storage.
- Contributed to International Handbook of Evaluated Criticality Safety Benchmark Experiments by evaluating experiments that were performed with arrays of uranyl nitrate cans at ORCEF between 1966 and 1968.
- Additional responsibilities are identification of methods and data deficiencies for novel applications, and subsequently development of the enhancements necessary to rectify the deficiencies.

10/1997 – 6/2000

FRAMATOME COGEMA FUELS, Las Vegas, NV

Nuclear Engineer

- Provided criticality safety and shielding expertise in the application of the disposal criticality analysis methodology to designated DOE fuel forms that are slated for disposal at the Yucca Mountain such as FFTF, Shippingport-PWR, Fermi Reactor, N-Reactor, Triga, etc.
- As lead analyst, coordinated or performed the criticality and shielding, analyses and coordinated the structural, thermal and geochemistry analyses for selected DOE EM fuels.
- Performed validation of MCNP for criticality and shielding analyses of waste packages designed for storage at Yucca Mountain.

1/1992 – 10/1997

UNIVERSITY OF TENNESSEE, NUCLEAR ENGINEERING DEPARTMENT, Knoxville, TN

6/1997 – 10/1997

Post-Doctorate

- Involved in the development of a time-dependent Monte Carlo neutron transport code with thermal-hydraulic feedback (TDKENO).

1/1992 – 6/1997

Graduate Research Assistant

- Developed the kinetics computer code TDTORT (available through RSICC) based on time-dependent 3-d transport theory to perform analyses of criticality safety excursions, coolant voiding situations in power reactors, and small high leakage reactors such as space reactors.
- Improved neutronics calculations of the High Flux Isotope Reactor as part of MS thesis by creating more accurate problem-dependent cross section libraries.
- Performed code and cross-section verification and validation studies for criticality and shielding applications.
- As the graduate student in charge of computing codes and resources, installed and maintained computer code collection SCALE, MCNP, TORT, DORT, and DANTSYS on department's workstations, which allowed extensive experience on the usage and applications of these codes.

3/1992 – 12/1993

OAK RIDGE NATIONAL LABORATORY, HIGH FLUX ISOTOPE REACTOR, Reactor Technology Section, Research Reactors Division, Oak Ridge, TN

Intern

- Improved earlier methods to analyze the reactor power distributions using the SCALE code system and VENTURE neutronics code.
- Assisted in analyses of foil activation experiments.

9/1989 – 12/1991

HACETTEPE UNIVERSITY, Ankara, TURKEY

Research/Teaching Assistant

- MS thesis involved preparation of few group problem dependent cross sections for a Pebble Bed Gas Cooled Heating Reactor (GHR-20) and neutronics analysis of the GHR-20.
- Set up laboratory equipment and helped students to understand the theory for “Electronics Lab” and “Nuclear Physics Lab” courses.

ACHIEVEMENTS AND ACTIVITIES

- Received Certificate of Appreciation from National Nuclear Security Administration for demonstrating the opportunity for significant increases in fissile mass limits with corresponding benefit to the transuranic waste disposition program (April 2002).
- American Nuclear Society National Student Design Competition (Graduate Division); Project entitled “Analysis of Shielding Concerns for Spent Fuel in the Advanced Neutron Source Reactor”; selected first place winner at the American Nuclear Society Meeting in San Francisco (November 1993).
- American Nuclear Society University of Tennessee student chapter graduate student representative (1994).
- American Nuclear Society member.
- American Nuclear Society Local Sections Committee Member (2000-present).
- Attended Nuclear Criticality Safety Short Course at the University of New Mexico (July 1998).
- Worked extensively with SUN, IBM, DEC Alpha and HP UNIX workstations, and PC’s. Also have experience with VAX machines and other mainframes.
- Excellent knowledge of FORTRAN, working knowledge of BASIC.
- Involved in first stage calculations of WIMS Library Update Project organized by International Atomic Energy Agency.
- Participated and completed the workshop on Reactor Physics Calculations for Applications in Nuclear Technology held at International Center for Theoretical Physics, Trieste, Italy (1990).

PUBLICATIONS

Over 50 publications in journals, conference proceedings or transactions, OCRWM reports, or ORNL reports as primary author or co-author.