

**Curriculum Vita**  
**Mohamed E. Sawan**

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**CAREER HIGHLIGHTS**

Seven years of experience teaching Nuclear Engineering courses and supervising M.S. and Ph.D. students in areas related to nuclear fission reactors. Thirty seven years of experience in the design and analysis of fusion reactor systems. Broad experience in performing neutronics, shielding, activation, and safety analyses for both magnetic and inertial confinement fusion systems.

**PROFESSIONAL EXPERIENCE:**

Emeritus Distinguished Research Professor, Department of Engineering Physics, The University of Wisconsin-Madison (July 2016- present)

Distinguished Research Professor and Associate Director of the Fusion Technology Institute, The University of Wisconsin-Madison (January 2004 to July 2016)

- Leading and coordinating ITER nuclear analysis activities in the US.
- Leading and coordinating nuclear analysis activities in the US fusion base program in support of all elements of the US Fusion Virtual Laboratory of Technology (VLT).
- Leading and coordinating nuclear analysis activities in the High Average Power Laser (HAPL) National project to utilize direct drive laser fusion for power generation.
- Representing the US fusion community in the Cross Section Evaluation Working Group (CSEWG) and participating in its activities related to nuclear data development.
- Participating in the IAEA Nuclear data Section (NDS) activities to develop International Fusion Evaluated Nuclear Data Library (FENDL) for fusion nuclear analysis.

Senior Scientist and Neutronics Group Leader (July 1983 to present); Associate Scientist (May 1980 to June 1983), Fusion Technology Institute, The University of Wisconsin, Madison, Wisconsin 53706.

Participated in the design of several magnetic and inertial confinement fusion reactors with emphasis on areas of neutronics, shielding, activation and safety analyses. These activities covered a wide range of facilities:

- Magnetic confinement technology test reactors (TDF, TASKA, TASKA-M, INTOR).
- Conceptual designs for tandem mirror (MARS, MINIMARS), Stellarator (ASRA) and tokamak (ARIES) power reactors.
- Conceptual design for advanced fuel reactors for space (SOAR) and terrestrial (Apollo, ARIES-III) applications.
- The particle beam fusion accelerator (PBFA-II) facility at SNL.
- Near term light ion beam facilities including the Target Development Facility (TDF) and the Laboratory Microfusion Facility (LMF).
- Conceptual designs for heavy ion (HIBALL, HIBALL-II, OSIRIS), light ion (LIBRA, LIBRA-LITE, LIBRA-SP), and laser (SIRIUS-M, SIRIUS-T, SIRIUS-P, SOMBRERO) driven ICF power reactors.

Lead the blanket and shield design for the TIBER-II tokamak experimental reactor which represented the U.S. effort preceding ITER.

Active participation in the ITER design during both the CDA and EDA phases. This included the following activities:

- Leading and coordinating the UW effort in the ITER reactor design since the start of the ITER project in 1988.

- Leading the U.S. design effort of the aqueous lithium salt breeding blanket during the CDA phase.
- Coordinating the UW contribution to the reference U.S. solid breeder blanket design during the CDA phase.
- Shielding subtask leader for the U.S. home team during the year 1991-92.
- Performing magnet shielding analysis including detailed three-dimensional calculations with major reactor penetrations.
- Performing three-dimensional neutronics calculations for the breeding blanket design options to determine the overall TBR.
- Participating in several ITER workshops as a representative of the U.S. home team in areas of blanket and shield design.
- Spending extended periods at the ITER co-center in Garching to provide support for the ITER joint central team design activities in the area of blanket and shield design.

Associate Professor (July 1979 to May 1980); Assistant Professor (July 1974 to June 1979), Nuclear Engineering Department, Alexandria University, Alexandria, Egypt.

Taught several courses, among them Reactor Theory, Reactor Thermal Design, Advanced Mathematics, Neutron Transport Theory, and Interaction of Radiation with Matter. Supervised thesis research in areas of Reactor Safety, Emergency Core Cooling, Neutron Wave Propagation, Resonance Absorption, Non-destructive Assay of Fast Reactor Fuel, Neutron Transport Theory, and Neutron Slowing Down. Three Ph.D. and 10 M.S. theses were supervised.

Lecturer (September 1973 to June 1974), Nuclear Engineering Department, The University of Wisconsin, Madison, Wisconsin 53706.

Taught courses of Nuclear Reactor Analysis, and Physics and Safety of Fast Reactors. Performed research on Emergency Core Cooling in LWRs.

Research Assistant (September 1969 to September 1973), Nuclear Engineering Department, The University of Wisconsin, Madison, Wisconsin 53706.

Performed research in the area of time-dependent neutron slowing down and methods for fissile material assay and safeguards.

Teaching Assistant (September 1967 to September 1969), Nuclear Engineering Department, Alexandria University, Alexandria, Egypt.

Helped in teaching several Nuclear Engineering courses.

## EDUCATION

University of Wisconsin - Madison	Ph.D. - Nuclear Engineering	December 1973
	M.S. - Nuclear Engineering	January 1971
Alexandria University - Egypt	B.S. - Nuclear Engineering,	June 1967

## AWARDS

The American Nuclear Society Fusion Energy Division Outstanding Achievement Award, 2016

Elected in April 2000 to the rank of fellow in the American Nuclear Society.

Certificate of merit in recognition of outstanding leadership and performance in ITER design, 1998.

1994 recipient of the University of Wisconsin Chancellor's Award for Excellence in Research.

Best Paper Award at the June 1981 American Nuclear Society meeting in Miami.

## PUBLICATIONS

Over 410 published papers and reports in Nuclear Engineering subjects.

Many talks presented at International and National conferences and meetings.