Tim D. Bohm

1500 Engineering Dr. Madison, WI 53706
phone (608) 262-9312 email: tim.bohm@wisc.edu

Education and Training:

• PhD. Nuclear Engineering, University of Wisconsin-Madison, August 1996
• M.S. /B.S. Nuclear Engineering, University of Wisconsin-Madison, May 1993
• B.S. Nuclear Engineering, University of Wisconsin-Madison, December 1990

Research and Professional Experience:

• **Senior Scientist**, Department of Engineering Physics, Fusion Technology Institute, University of Wisconsin, Madison, WI, September 2013-present
• **Associate Scientist**, Department of Engineering Physics, Fusion Technology Institute, University of Wisconsin, Madison, WI, September 2006-August 2013
• Analyze and investigate radiation shielding in complex fusion reactors (e.g. ITER) using 3-D CAD based Monte Carlo transport methods (e.g. DAG-MCNP5)
• Guide design of fusion reactor components based on 3-D nuclear radiation shielding analysis
• Interact with and respond to sponsors of our research group's nuclear analysis and design contracts/grants
• Assist in writing research grant and research contract proposals to agencies and sponsors
• Teach Monte Carlo portion of undergraduate Senior Design Class in the Department of Engineering Physics /Nuclear Engineering (NE412)
• Assist graduate students and faculty in Monte Carlo analysis of nuclear systems
• **Associate Scientist**, Department of Medical Physics, University of Wisconsin, Madison, WI, January 2003-August 2006
• Designed (using Monte Carlo methods), built, and experimentally tested improved well-type ionization chamber for low energy photon brachytherapy sources
• Modeled and investigated a variety of radiation detectors (hypersensitive radiochromic film, well ionization chambers, free air chambers, ferroelectric detectors, CsI digital x-ray detectors)
• Designed and maintained 95 node Condor based computer cluster
• Assisted graduate students and faculty in Monte Carlo analysis of Medical devices
• Developed and wrote research grant applications (NIH, industrial, State of Wisconsin)
• **Assistant Scientist**, Department of Medical Physics, University of Wisconsin, Madison, WI, September 1999-December 2002
• Modeled and investigated dosimetry of low energy prostate brachytherapy sources
• Updated low energy photon cross section data for MCNP/MCNPX
• Modeled and characterized fast neutron therapy sources
• Designed and maintained 24 node Beowulf computer cluster
• Assist graduate students and faculty in Monte Carlo analysis of Medical devices

Selected First Author Refereed Journal Publications:

1. Bohm, Tim; Davis, Andrew; Sawan, Mohamed; et al.,Detailed 3-D nuclear analysis of ITER outboard blanket modules, FUSION ENGINEERING AND DESIGN Volume: 96-97 Pages: 222-226 Published: OCT 2015
2. Bohm, Tim D.; Sawan, Mohamed E., THE IMPACT OF UPDATED CROSS SECTION LIBRARIES ON ITER NEUTRONICS CALCULATIONS, FUSION SCIENCE AND TECHNOLOGY Volume: 68 Issue: 2 Pages: 331-335 Published: SEP 2015

3. Bohm, T. D.; Sawan, M. E.; Marriott, E. P.; et al., Detailed 3-D nuclear analysis of ITER blanket modules, FUSION ENGINEERING AND DESIGN Volume: 89 Issue: 9-10 Pages: 1954-1958 Published: OCT 2014
4. Bohm, T. D.; Sawan, M. E.; Wilson, P.H., THE IMPACT OF SIMPLIFICATIONS ON 3-D NEUTRONICS ANALYSIS OF BLANKET MODULES IN ITER, *Fusion Science and Technology*, Volume:64, Issue: 3 Pages: 587-591, 2013
5. Bohm, T. D.; Sawan, M. E.; Jackson, S. T.;Wilson, P.H., Detailed Nuclear Analysis of ITER ELM Coils, *Fusion Engineering And Design* Volume:87 Issue 5-6 (2012), pp. 657-661
6. Bohm, T. D.; Sawan, M. E.; Smith, B.; et al., INVESTIGATION OF OBSERVED PEAKING IN NUCLEAR PARAMETERS AT STEEL/WATER INTERFACES, *Fusion Science and Technology* Volume: 60 Issue: 2 Pages: 698-702 AUG 2011
7. Bohm, T. D.; Smith, B.; Sawan, M. E.; et al., ASSESSMENT OF THE SURFACE SOURCE APPROACH IN 3-D FUSION NEUTRONICS ANALYSIS, *Fusion Science and Technology* Volume: 60 Issue: 2 Pages: 703-707 AUG 2011
8. Bohm, Tim D.; Sawan, Mohamed E., NUCLEAR ANALYSIS OF TOROIDAL AND POLOIDAL LEGS OF ITER ELM COILS, *Fusion Science and Technology* Volume: 60 Issue: 1 Pages: 113-117 JUL 2011
9. Bohm, Tim D.; El-Guebaly, Laila, NOVEL SOLUTION FOR THE PROBLEM OF NEUTRON STREAMING THROUGH INBOARD ASSEMBLY GAPS OF ARIES TOKAMAK POWER PLANTS, *Fusion Science and Technology* Volume: 60 Issue: 1 Pages: 278-282 JUL 2011
10. Bohm, Tim D.; Jackson, S. T.; Sawan, M. E.; et al., BENCHMARKING A CAD-BASED MONTE CARLO CODE USING FUSION-SPECIFIC EXPERIMENTS, *Nuclear Technology* Volume: 175 Issue: 1 Special Issue: SI Pages: 264-270 JUL 2011
11. Bohm, T. D.; Sawan, M. E.; Wilson, P., RADIATION STREAMING IN GAPS BETWEEN ITER FIRST WALL/SHIELD MODULES, *Fusion Science and Technology* Volume: 56 Issue: 2 Pages: 731-735 AUG 2009

Selected Co-authored Refereed Journal Publications:

1. Daly, E. F.; Ioki, K.; Loarte, A.; et al., UPDATE ON DESIGN OF THE ITER IN-VESSEL COILS, FUSION SCIENCE AND TECHNOLOGY Volume: 64 Issue: 2 Pages: 168-175 Published: AUG 2013
2. Sawan, M. E.; Bohm, T. D., Impact of FENDL-2.1 Updates on Nuclear Analysis of ITER and Other Fusion Systems, JOURNAL OF THE KOREAN PHYSICAL SOCIETY Volume: 59 Issue: 2 Special Issue: SI Pages: 1158-1161 Published: AUG 2011
3. Neumeyer, C.; Brooks, A.; Bryant, L.; et al., DESIGN OF THE ITER IN-VESSEL COILS, *Fusion Science and Technology* Volume: 60 Issue: 1 Pages: 95-99 Published: JUL 2011

Synergistic Activities

Member of the American Nuclear Society, Radiation Protection and Shielding Division.

Collaborators at other Institutions

1. Russ Feder, Princeton Plasma Physics Laboratory
2. Charles Neumeyer, Princeton Plasma Physics Laboratory
3. Phil Heitzenroeder, Princeton Plasma Physics Laboratory
4. Mike Ulrickson, retired from Sandia National Laboratory