

References

- [Ghoniem et al., 1974] Ghoniem, N. et al. *Reactivity Coefficients In A Thorium Oxide Fuelled, Heavy Water Moderated And Cooled Reactor (Part A); Validity of Bragg Stopping Cross-Section Additivity Rule For SiC (Part B)*. Ph.D. thesis, 1974.
- [Badger et al., 1975] Badger, B., Conn, R., Kulcinski, G., Abdou, M., Aronstein, R., Avci, H., Boom, R., Cheng, T., Davis, J., Donhowe, J., et al. Uwmak-ii, a conceptual tokamak power reactor design. *University of Wisconsin, UWFD-112*, 1975.
- [Mense et al., 1975] Mense, A., Callen, J., and Emmert, G. Fusion technology institute university of wisconsin madison wisconsin. 1975.
- [Badger et al., 1976] Badger, B., Conn, R., Kulcinski, G., Maynard, C., Aronstein, R., Avci, H., Blackfield, D., BOOM, R., Bowles, A., Cameron, E., et al. Uwmak-iii, a noncircular tokamak power reactor design. *Electrical Power Research Institute report ER-368*, 1976.
- [Ghoniem and Kulcinski, 1976a] Ghoniem, N. and Kulcinski, G. Fully dynamic rate theory (fdrt) simulation of radiation induced swelling of metals. *University of Wisconsin, Madison, October 1976*, 1976a.
- [Ghoniem and Kulcinski, 1976b] Ghoniem, N. and Kulcinski, G. Fusion technology institute university of wisconsin madison wisconsin. 1976b.
- [Ghoniem and Kulcinski, 1976c] Ghoniem, N. and Kulcinski, G. Swelling of metals under pulsed irradiation. *Nuclear Engineering Department Report UWFD-179, University of Wisconsin (October 1976)*, 1976c.
- [GHONIEM, 1977] GHONIEM, N. A dynamic rate theory for the response of metals during steady state and pulsed irradiation(computer program)[ph. d. thesis]. 1977.
- [Ghoniem and Kulcinski, 1977] Ghoniem, N. and Kulcinski, G. Dose rate and cascade collapse effects on swelling of steel. *Trans. Am. Nucl. Soc.:(United States)*, 27, 1977.
- [Ghoniem and Kulcinski, 1978a] Ghoniem, N. and Kulcinski, G. Point defect kinetics in pulsed fusion reactors. *Trans. Am. Nucl. Soc.:(United States)*, 30(CONF-7811109-), 1978a.

- [Ghoniem and Kulcinski, 1978b] Ghoniem, N. and Kulcinski, G. A rate theory approach to time dependent microstructural development during irradiation. *Radiation Effects*, 39(1):47–56, 1978b.
- [Ghoniem and Kulcinski, 1978c] Ghoniem, N. and Kulcinski, G. Swelling of metals during pulsed irradiation. *Journal of Nuclear Materials*, 69:816–820, 1978c.
- [Ghoniem, 1978] Ghoniem, N. M. A dynamic rate theory for the response of metals during steady state and pulsed irradiation. 1978.
- [Griesmeyer and Ghoniem, 1978] Griesmeyer, J. and Ghoniem, N. Effect of point defects on nonequilibrium bubble behavior in uo 2. *Transactions of the American Nuclear Society*, 30, 1978.
- [Ghoniem and Cho, 1979a] Ghoniem, N. and Cho, D. Interstitial loop formation in inertial confinement fusion reactors. *Transactions of the American Nuclear Society*, 33, 1979a.
- [Ghoniem and Cho, 1979b] Ghoniem, N. and Cho, D. Model for the simultaneous clustering of point defects. *Trans. Am. Nucl. Soc.:(United States)*, 32(CONF-790602-(Summ.)), 1979b.
- [Ghoniem and Cho, 1979c] Ghoniem, N. and Cho, D. The simultaneous clustering of point defects during irradiation. *physica status solidi (a)*, 54(1):171–178, 1979c.
- [Ghoniem and Kulcinski, 1979a] Ghoniem, N. and Kulcinski, G. The effect of pulsed irradiation on the swelling of 316 stainless steel in fusion reactors. *Nuclear Engineering and Design*, 52(1):111–125, 1979a.
- [Ghoniem and Kulcinski, 1979b] Ghoniem, N. and Kulcinski, G. Fusion technology institute university of wisconsin. 1979b.
- [Ghoniem and Kulcinski, 1979c] Ghoniem, N. and Kulcinski, G. The use of the fully dynamic rate theory to predict void growth in metals. *Radiation Effects*, 41(2):81–89, 1979c.
- [Ghoniem and Sharafat, 1979] Ghoniem, N. and Sharafat, S. Numerical solution of the fokker-planck equation.[lmfbr]. *Trans. Am. Nucl. Soc.:(United States)*, 33(CONF-791103-), 1979.
- [Ghoniem and Kulcinski, 1979d] Ghoniem, N. M. and Kulcinski, G. L. A critical assessment of the effects of pulsed irradiation on materials. 1979d.

- [Ghoniem and Kulcinski, 1979e] Ghoniem, N. M. and Kulcinski, G. L. Void growth characteristics in laser fusion reactor first walls. *Journal of Nuclear Materials*, 85:547–552, 1979e.
- [Griesmeyer and Ghoniem, 1979a] Griesmeyer, J. and Ghoniem, N. Intragranular fission gas behavior in transients. In *International meeting on fast reactor safety technology*. 1979a.
- [Griesmeyer and Ghoniem, 1979b] Griesmeyer, J. and Ghoniem, N. The response of fission gas bubbles to the dynamic behavior of point defects. *Journal of Nuclear Materials*, 80(1):88–101, 1979b.
- [Griesmeyer et al., 1979a] Griesmeyer, J., Ghoniem, N., and Okrent, D. A model for the dynamic intragranular fission gas swelling and release. 1979a.
- [Griesmeyer et al., 1979b] Griesmeyer, J. M., Ghoniem, N. M., and Okrent, D. A dynamic intragranular fission gas behavior model. *Nuclear Engineering and Design*, 55(1):69–95, 1979b.
- [Gurol and Ghoniem, 1979] Gurol, H. and Ghoniem, N. Analytical modeling of void growth in icfr first walls. *Trans. Am. Nucl. Soc.:(United States)*, 33(CONF-791103-), 1979.
- [SWELLING et al., 1979] SWELLING, G., GRIESMEYER, R. J., GHONIEM, N., and OKRENT, D. Chemical, nuclear and thermal engineering department, school of engineering and applied science, university of california, los angeles, california 90024, usa. In *Transactions of the 5th International Conference on Structural Mechanics in Reactor Technology, ICC Berlin, Germany, 13-17 August 1979*. North-Holland Publishing Company for the Commission of the European Communities, 1979.
- [Ghoniem, 1980] Ghoniem, N. The early stages of void and interstitial loop evolution in pulsed fusion reactors. *Journal of Nuclear Materials*, 89(2-3):359–371, 1980.
- [Ghoniem and Sharafat, 1980] Ghoniem, N. and Sharafat, S. A numerical solution to the fokker-planck equation describing the evolution of the interstitial loop microstructure during irradiation. *Journal of Nuclear Materials*, 92(1):121–135, 1980.

- [Gurol and Ghoniem, 1980] Gurol, H. and Ghoniem, N. Irradiation creep by the climb-controlled glide mechanism in tokamaks. *Trans. Am. Nucl. Soc.:(United States)*, 34(CONF-800607-), 1980.
- [Peatfield et al., 1980] Peatfield, M., Brett, N., Haines, H., Potter, P., Peatfield, N., Wood, M., Matthews, J., Kleykamp, H., Tanifuji, T., Nasu, S., et al. N. nagata and r. watanabe. *Journal of Nuclear Materials*, 89:407–411, 1980.
- [Conn et al., 1981a] Conn, R., Dhir, V., and Ghoniem, N. Satyr: studies of a dd fueled axisymmetric tandem-mirror reactor. Technical report, California Univ., 1981a.
- [Conn et al., 1981b] Conn, R., Ghoniem, N., and Youssef, M. Blanket and shield nuclear analysis of a dd tandem mirror reactor. *Trans. Am. Nucl. Soc.:(United States)*, 38(CONF-810606-), 1981b.
- [Ghoniem, 1981] Ghoniem, N. Materials and radiation damage considerations for dd tandem mirror reactors. *Trans. Am. Nucl. Soc.:(United States)*, 38(CONF-810606-), 1981.
- [Ghoniem et al., 1981] Ghoniem, N., Conn, R., Dhir, V., Grotz, S., and Youssef, M. Pressure-vessel blanket concept for dd tandem mirror fusion reactors. In *AIChE Symposium Series*, volume 77. 1981.
- [Ghoniem and Gurol, 1981] Ghoniem, N. and Gurol, H. An analytical approach to void growth in metals under intense radiation pulsing. *Radiation Effects*, 55(3-4):209–221, 1981.
- [Ghoniem and Takata, 1981] Ghoniem, N. and Takata, M. Modeling helium behavior in fusion reactor structural materials. In *Structural mechanics in reactor technology. Vol. N*. 1981.
- [GUROL et al., 1981] GUROL, H., GHONIEM, N., and MANSUR, L. Irradiation creep by the climb-controlled glide mechanism in pulsed fusion-reactors. *RADIATION EFFECTS LETTERS*, 67(1-2):27–30, 1981.
- [Gurol et al., 1981a] Gurol, H., Ghoniem, N., and Wolfer, W. The role of dispersed barriers in the pulsed irradiation creep of magnetic fusion reactor materials. *Journal of Nuclear Materials*, 99(1):1–15, 1981a.
- [Gurol et al., 1981b] Gurol, H., Ghoniem, N. M., and Wolfer, W. Enhancement of irradiation creep in pulsed fusion reactors. *Journal of Nuclear Materials*, 104:1251–1255, 1981b.

- [Sawan et al., 1981a] Sawan, M., Kulcinski, G., and Ghoniem, N. Pulsed inertial confinement fusion reactors. *Paper presented at Second Topical Mtg. on Fusion Reactor Materials*, 1981a.
- [Sawan et al., 1981b] Sawan, M. E., Kulcinski, G. L., and Ghoniem, N. M. Production and behavior of point defects in pulsed inertial confinement fusion reactors. *Journal of Nuclear Materials*, 103:109–113, 1981b.
- [Schafer Jr and Ghoniem, 1981] Schafer Jr, R. and Ghoniem, N. M. The interaction of helium and displacement damage in inertial confinement fusion reactors. *Journal of Nuclear Materials*, 104:1457–1461, 1981.
- [Yaung and Ghoniem, 1981] Yaung, J. and Ghoniem, N. Modifications of the fuel rod analysis program frap-s3 to account for the effects of fuel initial density. *Nuclear Technology*, 54(1):87–91, 1981.
- [YOUSSEF et al., 1981] YOUSSEF, M., CONN, R., and GHONIEM, N. Blanket and shield nuclear analysis of a dd tandem mirror reactor. In *TRANSACTIONS OF THE AMERICAN NUCLEAR SOCIETY*, volume 38, pages 573–574. AMER NUCLEAR SOC 555 N KENSINGTON AVE, LA GRANGE PK, IL 60526 USA, 1981.
- [Alhajji et al., 1982] Alhajji, J., Garner, F., and Ghoniem, N. Hardening of irradiated alloys due to the simultaneous formation of vacancy and interstitial loops. 1982.
- [Alhajji and Ghoniem, 1982] Alhajji, J. and Ghoniem, N. Simultaneous formation of both vacancy and interstitial loops under irradiation. *Trans. Am. Nucl. Soc.:(United States)*, 41(CONF-820609-), 1982.
- [Beghi and Ghaniem, 1982] Beghi, M. and Ghaniem, N. Analytical formation of the fokker-planck equation for loop size distributions. *Trans. Am. Nucl. Soc.:(United States)*, 41(CONF-820609-), 1982.
- [Berwald et al., 1982] Berwald, D., Moir, R., Lee, J., et al. Fission suppressed hybrid reactor-the fusion breeder. *Lawrence Livermore National Laboratory, UCID-19327*, 1982.
- [CHOU and GHONIEM, 1982] CHOU, P. and GHONIEM, N. Precipitate resolution due to high-energy collision cascades. In *JOURNAL OF METALS*, volume 34, pages 24–24. MINERALS METALS MATERIALS SOC 420 COMMONWEALTH DR, WARRENDALE, PA 15086, 1982.

- [Chou and Ghoniem, 1982] Chou, S. and Ghoniem, N. Preferential sputtering effects on surface coatings. *Transactions of the American Nuclear Society*, 43, 1982.
- [Conn et al., 1982] Conn, R., Dhir, V., Ghoniem, N., Goebel, D., Grotz, S., Kantrowitz, F., Kim, N., Mau, T., Shuy, G., and Youssef, M. Studies of the physics and engineering of deuterium-deuterium barrier tandem mirror reactors. *Nuclear Technology-Fusion*, 2(4):563–589, 1982.
- [Ghoniem and Conn, 1982a] Ghoniem, N. and Conn, R. Fusion reactor materials (report on the second american nuclear society topical meeting, seattle, washington, usa, 9–12 august 1981). *Nuclear Fusion*, 22(7):977, 1982a.
- [Ghoniem and Conn, 1982b] Ghoniem, N. and Conn, R. High-temperature evaluation of ferritic steels for fusion reactors. *Transactions of the American Nuclear Society*, 41, 1982b.
- [GHONIEM et al., 1982] GHONIEM, N., SHARAFAT, F., WILLIAMS, J., and MANSUR, L. Helium diffusion in irradiated materials. In *JOURNAL OF METALS*, volume 34, pages 35–35. MINERALS METALS MATERIALS SOC 420 COMMONWEALTH DR, WARRENDALE, PA 15086, 1982.
- [Ghoniem and Takata, 1982] Ghoniem, N. and Takata, M. A rate theory of swelling induced by helium and displacement damage in fusion reactor structural materials. *Journal of Nuclear Materials*, 105(2-3):276–292, 1982.
- [Ghoniem et al., 1982a] Ghoniem, N. M., Alhajji, J., and Garner, F. Hardening of irradiated alloys due to the simultaneous formation of vacancy and interstitial loops. Technical report, California Univ., 1982a.
- [Ghoniem and Conn, 1982c] Ghoniem, N. M. and Conn, R. *Highlights of the Second American Nuclear Society Topical Meeting on Fusion Reactor Materials, August 9-12, 1981*. Center for Plasma Physics and Fusion Engineering, University of California . . . , 1982c.
- [Ghoniem and Kulcinski, 1982] Ghoniem, N. M. and Kulcinski, G. A critical assessment of the effects of pulsed irradiation on the microstructure, swelling, and creep of materials. *Nuclear Technology-Fusion*, 2(2):165–198, 1982.

- [Ghoniem et al., 1982b] Ghoniem, N. M., Sharafat, S., and Mansur, L. K. The kinetics of the interaction between helium and displacement damage in irradiated materials. In *Proceedings of Yamada conference 5 on point defects and defect interactions in metals*. 1982b.
- [Sharafat and Ghoniem, 1982] Sharafat, S. and Ghoniem, N. Helium diffusion in materials under irradiation. *Trans. Am. Nucl. Soc.:(United States)*, 41(CONF-820609-), 1982.
- [Blanchard and Ghoniem, 1983] Blanchard, J. and Ghoniem, N. M. Global inelastic structural analysis of the mars tandem mirror blanket tubes including radiation effects. In *Transactions of the 7. international conference on structural mechanics in reactor technology*. Vol. N. 1983.
- [Chou and Ghoniem, 1983] Chou, P. and Ghoniem, N. Precipitate dissolution by high energy collision cascades. *Journal of Nuclear Materials*, 117:55–63, 1983.
- [Conn et al., 1983a] Conn, R., Ghoniem, N., Grotz, S., Najmabadi, F., Taghavi, K., and Youssef, M. Influence of startup, shutdown and staged power operation on tandem mirror reactor design. *Nuclear Technology-Fusion*, 4(2P2):615–622, 1983a.
- [Conn et al., 1983b] Conn, R., Ghoniem, N., Pomraning, G., and Mau, T. Fusion reactors: Physics and technology. *California Univ., Los Angeles Report*, 1983b.
- [Conn et al., 1983c] Conn, R., Ghoniem, N. M., and Goebel, D. The satyr study of dd cycle tandem mirror reactors. In *Fusion reactor design and technology*. 1983c.
- [Ghoniem and Berwald, 1983] Ghoniem, N. and Berwald, D. Analysis of blanket structure lifetime for the tandem mirror hybrid reactor (tmhr). *Nuclear Technology-Fusion*, 4(2P2):439–444, 1983.
- [Ghoniem et al., 1983a] Ghoniem, N., Blink, J., and Hoffman, N. Selection of alloy steel type for fusion power applications in the 350-500 deg c temperature range. In *Topical Conference on Ferritic Alloys for Use in Nuclear Energy Technologies*, pages 185–193. 1983a.
- [Ghoniem et al., 1983b] Ghoniem, N., Sharafat, S., Williams, J., and Mansur, L. Theory of helium transport and clustering in materials under irradiation. *Journal of Nuclear Materials*, 117:96–105, 1983b.

- [Ghoniem et al., 1983c] Ghoniem, N., Taghavi, K., Blanchard, J., and Grotz, S. Limits on transient power variations during startup and shutdown of li-pb cooled tnr blankets. *Nuclear Technology-Fusion*, 4(2P3):769–774, 1983c.
- [Ghoniem, 1983] Ghoniem, N. M. *Neutron Radiation Effects on the Structure of the Particle Beam Fusion Target Development Facility: Final Project Report, 9/3/81-3/31/83*. Center for Plasma Physics and Fusion Engineering, University of California . . . , 1983.
- [Ghoniem and Conn, 1983] Ghoniem, N. M. and Conn, R. Assessment of ferritic steels for steady-state fusion reactors. In *Fusion Reactor Design and Technology. Vol. 2. Proceedings of the Third Technical Meeting*. 1983.
- [Ghoniem and Maziasz, 1983] Ghoniem, N. M. and Maziasz, P. *Helium Effects on Solids:” a Reference Manual”*. Center for Plasma Physics and Fusion Engineering, University of California . . . , 1983.
- [Gordon et al., 1983] Gordon, J., Berwald, D., Flanders, B., Garner, J., Mortenson, S., Parmer, J., Sink, C., Yu, J., Agarwal, K., Dharmaraj, S., et al. Mars high temperature blanket. *Nuclear Technology-Fusion*, 4(2P3):1233–1238, 1983.
- [Gurol et al., 1983] Gurol, H., Ghoniem, N., and Wolfer, W. Effects of cascade size on irradiation creep. *Trans. Am. Nucl. Soc.:(United States)*, 44(CONF-830609-), 1983.
- [Moir et al., 1983] Moir, R., Lee, J., Coops, M., Fulton, F., Neef Jr, W., Berwald, D., Campbell, R., Flanders, B., Garner, J., Ghoniem, N., et al. Fusion breeder reactor design studies. *Nuclear Technology-Fusion*, 4(2P2):589–598, 1983.
- [Amodeo and Ghoniem, 1984] Amodeo, R. J. and Ghoniem, N. M. Constitutive design equations for thermal creep deformation of ht-9. *Journal of Nuclear Materials*, 122(1-3):91–95, 1984.
- [Blanchard and Ghoniem, 1984] Blanchard, J. P. and Ghoniem, N. M. The influence of irradiation and thermal creep on stress redistribution in fusion blankets. *Journal of Nuclear Materials*, 122(1-3):101–105, 1984.
- [Conn et al., 1984] Conn, R., Ghoniem, N., and Najmabadi, F. Start/tm: a study of start-up and fractional power operation of tandem mirror fusion reactors. *Unknown*, 1984.

- [Ghoniem, 1984] Ghoniem, N. Helium migration and its influence on cavity formation in irradiated materials. *Res Mechanica*, 10(4):287–294, 1984.
- [Ghoniem et al., 1984a] Ghoniem, N., Blink, J., and Hoffman, N. Selection of alloy steel type for fusion power applications in the 350 0-500 0 c temperature range. In *Proceedings of the topical conference on ferritic alloys for use in nuclear energy technologies*. 1984a.
- [Ghoniem et al., 1984b] Ghoniem, N., Shabaik, A., and Youssef, M. Development of low activation vanadium steel for fusion applications. In *Proceedings of the topical conference on ferritic alloys for use in nuclear energy technologies*. 1984b.
- [Gordon et al., 1984] Gordon, J., Garner, J., Ghoniem, N., and Parmer, J. Ferritic steel applications in the mars high temperature blanket. In *Proceedings of the topical conference on ferritic alloys for use in nuclear energy technologies*. 1984.
- [Moir et al., 1984] Moir, R., Lee, J., Neef, W., Berwald, D., Garner, J., Whitley, R., Ghoniem, N., Wong, C. P., Maya, I., and Schultz, K. Feasibility study of a fission-suppressed tokamak fusion breeder. Technical report, Lawrence Livermore National Lab.(LLNL), Livermore, CA (United States), 1984.
- [ORIENT et al., 1984] ORIENT, G., WESTHANN, R., GHONIEM, N., GARNER, J., GROMADA, R., and PARK, O. S. Redondo beach, ca 90278 i^ mls^"! 1984.
- [Orient et al., 1984] Orient, G., Westmann, R., Ghoniem, N., Garner, J., and Gromada, R. Special topics reports for the reference tandem mirror fusion breeder. volume 4. structural analysis. Technical report, California Univ., 1984.
- [Sharafat and Ghoniem, 1984] Sharafat, S. and Ghoniem, N. M. Stability of helium-vacancy clusters during irradiation. *Journal of Nuclear Materials*, 122(1-3):531–536, 1984.
- [Simonen et al., 1984] Simonen, E., Ghoniem, N., and Packan, N. Pulsed flux effects on radiation damage. *Journal of Nuclear Materials*, 122(1-3):391–401, 1984.

- [Taghavi and Ghoniem, 1984a] Taghavi, K. and Ghoniem, N. M. Primary loop conditioning and design constraints of li pb cooled tandem mirror reactors during start-up/shutdown operations. *Nuclear Engineering and Design. Fusion*, 1(4):375–386, 1984a.
- [Taghavi and Ghoniem, 1984b] Taghavi, K. and Ghoniem, N. M. Transient thermal-hydraulics considerations of tandem mirror li pb cooled blankets during start-up/shutdown operations. *Nuclear Engineering and Design. Fusion*, 1(4):369–374, 1984b.
- [Amodeo and Ghoniem, 1985] Amodeo, R. J. and Ghoniem, N. M. Development of design equations for ferritic alloys in fusion reactors. *Nuclear Engineering and Design. Fusion*, 2(1):97–110, 1985.
- [Blanchard and Ghoniem, 1985a] Blanchard, J. and Ghoniem, N. Inelastic structural analysis of the mars tandem mirror reactor. *Nuclear Engineering and Design. Fusion*, 2(1):19–27, 1985a.
- [Blanchard and Ghoniem, 1985b] Blanchard, J. and Ghoniem, N. Sensitivity analysis for lifetime prediction of fusion structures. 1985b.
- [Bullough and Ghoniem, 1985] Bullough, R. and Ghoniem, N. M. The effect of void surface motion on the void sink strength for point-defects. *Journal of Nuclear Materials*, 127(1):47–55, 1985.
- [Chou and Ghoniem, 1985a] Chou, P. and Ghoniem, N. M. An approximate analytical calculation of precipitate dissolution rate using a slowing down-diffusion theory for charged particles. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 9(2):209–217, 1985a.
- [Chou and Ghoniem, 1985b] Chou, P. and Ghoniem, N. M. On the stochastic theory of point defect diffusion during irradiation: Cascade size and shape effects. *Journal of Nuclear Materials*, 137(1):63–72, 1985b.
- [GELLES et al., 1985] GELLES, D., GHONIEM, N., and POWELL, R. Low activation ferritic alloys(patent application). *Patent Number GB 2168709 A*, 1985.
- [Ghoniem et al., 1985] Ghoniem, N. M., Alhajji, J. N., and Kaletta, D. The effect of helium clustering on its transport to grain boundaries. *Journal of Nuclear Materials*, 136(2-3):192–206, 1985.

- [Philip and GHONIEM, 1985] Philip, C. and GHONIEM, N. M. An zyxwvutsrqponmlkjihgfedcbazyxwvutsrqponmlkjihgfedcba approximate analytical calculation of precipitate dissolution raix using a slowing down-diffusion theory for charged particles. *Nuclear Instruments and Methods in Physics Research*, 9:209–217, 1985.
- [Al-Hajji et al., 1986] Al-Hajji, J., Chou, P., Ghoniem, N., and Martin, R. Papers presented at the second international fusion reactor materials conference. Technical report, California Univ., Los Angeles (USA), 1986.
- [Al-Hajji and Ghoniem, 1986] Al-Hajji, J. and Ghoniem, N. M. Comprehensive modeling of creep fracture by grain boundary cavitation in irradiated structural alloys. *Journal of Nuclear Materials*, 141:536–539, 1986.
- [Amodeo and Ghoniem, 1986] Amodeo, R. J. and Ghoniem, N. M. *Dislocation Cell Formation: An Overview*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for . . . , 1986.
- [Blanchard and Ghoniem, 1986a] Blanchard, J. and Ghoniem, N. The bowing of solid breeder rods in a pin-type fusion reactor. *Fusion technology*, 10(3P2B):1623–1627, 1986a.
- [Blanchard and Ghoniem, 1986b] Blanchard, J. P. and Ghoniem, N. M. The influence of uncertainties in material properties, and the effects of dimensional scaling on the prediction of fusion structure lifetimes. *Nuclear Engineering and Design. Fusion*, 4(1):67–74, 1986b.
- [Blanchard and Ghoniem, 1986c] Blanchard, J. P. and Ghoniem, N. M. Thermomechanical analysis of solid breeders in sphere-pac, plate, and pellet configurations. Technical report, Univ. of California, Los Angeles, CA (United States), 1986c.
- [Chou and Ghoniem, 1986a] Chou, P. and Ghoniem, N. Collisional aspects of preferential sputtering using the monte carlo method. *Journal of Nuclear Materials*, 141:216–220, 1986a.
- [Chou and Ghoniem, 1986b] Chou, P. S. and Ghoniem, N. M. *Electron-hole Pair Generation by Energetic Charged Particles in Semiconductor Devices*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for . . . , 1986b.

- [Conn et al., 1986] Conn, R., Ghoniem, N. M., and Firestone, M. Tokops: Tokamak reactor operations study: The influence of reactor operations on the design and performance of tokamaks with solid-breeder blankets. Technical report, California Univ., Los Angeles (USA). Center for Plasma Physics and Fusion . . . , 1986.
- [Gelles et al., 1986] Gelles, D. S., Ghoniem, N. M., and Powell, R. W. Low activation ferritic alloys. 1986. US Patent 4,622,067.
- [Ghoniem et al., 1986] Ghoniem, N., Firestone, M., and Conn, R. The influence of reactor operations on the design and performance of tokamaks with solid-breeder blankets. *Fusion technology*, 10(3P2B):1133–1145, 1986.
- [Ghoniem and Sharafat, 1986] Ghoniem, N. M. and Sharafat, S. *A Preliminary Assessment of Structural Materials Requirements for Compact Fusion Systems*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for . . . , 1986.
- [Grotz and Ghoniem, 1986a] Grotz, S. and Ghoniem, N. M. Thermal response of a pin-type fusion reactor blanket during steady and transient reactor operation. Technical report, California Univ., 1986a.
- [Grotz and Ghoniem, 1986b] Grotz, S. P. and Ghoniem, N. M. Steady-state and transient thermal hydraulics of a breeder-in-tube blanket design. *Fusion technology*, 10(3P2B):1628–1633, 1986b.
- [Levin and Ghoniem, 1986] Levin, P. and Ghoniem, N. M. Neutronic optimization of a lialo2 solid breeder blanket. *Fusion technology*, 10(3P2B):1634–1639, 1986.
- [Martin and Ghoniem, 1986a] Martin, R. and Ghoniem, N. M. Modeling of tritium transport in a fusion reactor pin-type solid breeder blanket using the diffuse code. *Journal of Nuclear Materials*, 141:244–248, 1986a.
- [Martin and Ghoniem, 1986b] Martin, R. and Ghoniem, N. M. Modelling of tritium transport in a pin-type solid breeder blanket. Technical report, Univ. of California, Los Angeles, CA (United States), 1986b.
- [Naughton et al., 1986] Naughton, T. D., Ghoniem, N. M., and Lin, D. *Radiation Effects on the Micromechanical Aspects of Fatigue-crack Initiation*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for . . . , 1986.

- [Orient and Ghoniem, 1986a] Orient, G. E. and Ghoniem, N. M. Elastic structural analysis of the pin-type solid breeder blanket first wall. Technical report, Univ. of California, Los Angeles, CA (United States), 1986a.
- [Orient and Ghoniem, 1986b] Orient, G. E. and Ghoniem, N. M. A model for the mechanical interaction between solid breeder and cladding materials. *Fusion technology*, 10(3P2B):1617–1622, 1986b.
- [Sharafat et al., 1986] Sharafat, S., Amodeo, R., and Ghoniem, N. M. Materials data base and design equations for the ucla solid breeder blanket. Technical report, California Univ., 1986.
- [Sharafat and Ghoniem, 1986] Sharafat, S. and Ghoniem, N. M. *Numerical Solution to the Time-dependent 2-D Fokker-Planck Equation Representing Stochastic Atomic Clustering in Solids*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for ..., 1986.
- [Al-Hajji and Ghoniem, 1987] Al-Hajji, J. and Ghoniem, N. Nucleation of grain boundary cavities under the combined influence of helium and applied stress. *Acta Metallurgica*, 35(5):1067–1075, 1987.
- [Berwald et al., 1987] Berwald, D. H., Whitley, R., Garner, J., Gromada, R., McCarville, T. J., Moir, R. W., Lee, J. D., Bandini, B. R., Fulton, F. J., Wong, C. P., et al. Updated reference design of a liquid-metal-cooled tandem mirror fusion breeder. *Fusion Technology*, 12(1):30–70, 1987.
- [Blanchard et al., 1987a] Blanchard, J., Ghoniem, N., and Chou, S. An approximate solution to the scattering integral for general interatomic potentials. *Journal of applied physics*, 61(8):3120–3123, 1987a.
- [Blanchard et al., 1987b] Blanchard, J. P., Ghoniem, N. M., and Chou, S. Full derivation of an approximate solution to the scattering integral for general interatomic potentials. Technical report, 1987b.
- [Chou and Ghoniem, 1987a] Chou, P. and Ghoniem, N. Applications of the monte carlo code tripos to surface and bulk ion transport problems. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 28(2):175–184, 1987a.

- [Chou and Ghoniem, 1987b] Chou, P. S. and Ghoniem, N. M. Tripos: A dynamic monte carlo code for the transport of ions in polyatomic solids. Technical report, 1987b.
- [Gelles et al., 1987] Gelles, D., Ghoniem, N. M., and Powell, R. *Low activation ferritic alloys patent description*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for ..., 1987.
- [Hasan et al., 1987] Hasan, M., Blanchard, J., Conn, R., Cooke, P., Ghoniem, N., Grotz, S., Najmabadi, F., Orient, G., Sharafat, S., and Wong, C. Thermal-hydraulic design for the lithium-cooled titan reversed-field-pinch reactor. In *Proceedings of the 12th symposium on fusion engineering*. 1987.
- [Hasan and Ghoniem, 1987] Hasan, M. and Ghoniem, N. M. *The use of liquid-metal coolants in the thermal-hydraulic design of the first wall and blanket of high-power-density fusion reactors*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for ..., 1987.
- [Issacci et al., 1987] Issacci, F., Ghoniem, N. M., and Catton, I. *MHD Flow in a Curved Pipe*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for ..., 1987.
- [Martin and Ghoniem, 1987a] Martin, R. and Ghoniem, N. Monte carlo simulation of coupled ion-electron transport in semiconductors. *physica status solidi (a)*, 104(2):743–754, 1987a.
- [Martin et al., 1987] Martin, R., Ghoniem, N., Song, Y., and Cable, J. The size effect of ion charge tracks on single event multiple-bit upset. *IEEE Transactions on Nuclear Science*, 34(6):1305–1309, 1987.
- [Martin and Ghoniem, 1987b] Martin, R. C. and Ghoniem, N. M. *Coupled Ion-electron Transport in Semiconductors*. Mechanical, Aerospace, and Nuclear Engineering Department and Center for ..., 1987b.
- [Naughton et al., 1987] Naughton, T. D., Ghoniem, N. M., and Lin, T. H. Radiation effects on the micromechanics of fatigue crack initiation. In *Influence of Radiation on Material Properties: 13th International Symposium (Part II)*. ASTM International, 1987.
- [Orient et al., 1987] Orient, G., Blanchard, J., and Ghoniem, N. Thermostructural design of the first wall/blanket for the titan-rfp fusion

- reactor. In *Transactions of the 9th international conference on structural mechanics in reactor technology. Vol. N.* 1987.
- [Sharafat et al., 1987] Sharafat, S., Ghoniem, N., Cheng, E., Cooke, P., Grotz, S., Martin, R., Najmabadi, F., and Wong, C. Structure and insulator material choices for the titan reversed-field-pinch reactor study. In *Proceedings of the 12th symposium on fusion engineering.* 1987.
- [Amodeo and Ghoniem, 1988a] Amodeo, R. and Ghoniem, N. M. Dynamical computer simulation of the evolution of a one-dimensional dislocation pileup. *International journal of engineering science*, 26(7):653–662, 1988a.
- [Amodeo and Ghoniem, 1988b] Amodeo, R. J. and Ghoniem, N. M. Review of experimental observations and theoretical models of dislocation cells and subgrains. *Res Mech.:(United Kingdom)*, 23, 1988b.
- [Chou and Ghoniem, 1988] Chou, P. S. and Ghoniem, N. M. *Finite-element Solution of Coupled Poisson and Electron-hole Continuity Equations for Semiconductor Devices.* Mechanical, Aerospace, and Nuclear Engineering Department and Center for . . . , 1988.
- [Ghoniem, 1988a] Ghoniem, N. 14-mev neutron testing requirements for structural components for demo and commercial fusion reactors. *IPPJ-T: technical report*, 37:39–75, 1988a.
- [Ghoniem, 1988b] Ghoniem, N. The effects of pulsed neutron irradiation on materials. *IPPJ-T: technical report*, 37:77–92, 1988b.
- [Ghoniem, 1988c] Ghoniem, N. M. Detailed derivation of stochastic theory of diffusional planar atomic clustering. Technical report, 1988c.
- [Ghoniem, 1988d] Ghoniem, N. M. Determination of the bias factor by the moments solution to the fokker-planck equation. *Journal of Nuclear Materials*, 155:1123–1127, 1988d.
- [Ghoniem, 1988e] Ghoniem, N. M. *Seminar Series on Radiation Effects.* Mechanical, Aerospace, and Nuclear Engineering Department and Center for . . . , 1988e.
- [Ghoniem and Amodeo, 1988] Ghoniem, N. M. and Amodeo, R. Computer simulation of dislocation pattern formation. *Solid State Phenomena*, 3:377–388, 1988.

- [Ghoniem and Chou, 1988] Ghoniem, N. M. and Chou, S. Binary collision monte carlo simulations of cascades in polyatomic ceramics. *Journal of Nuclear Materials*, 155:1263–1267, 1988.
- [Grotz and Ghoniem, 1988] Grotz, S. and Ghoniem, N. Overview of the titan-i fusion-power core. Technical report, 1988.
- [Issacci et al., 1988] Issacci, F., Ghoniem, N., and Catton, I. Magnetohydrodynamic flow in a curved pipe. *The Physics of fluids*, 31(1):65–71, 1988.
- [Martin and Ghoniem, 1988] Martin, R. C. and Ghoniem, N. M. *Higher Order Axisymmetric Finite Element Solution of Poisson’s Equation for Semiconductor Device Simulation*. Mechanical, Aerospace and Nuclear Engineering Department and Center for ..., 1988.
- [Sharafat et al., 1988] Sharafat, S., Ghoniem, N., and Cooke, P. Material selection for the titan reversed-field pinch reactor. Technical report, 1988.
- [Song et al., 1988] Song, Y., Vu, K., Cable, J., Witteles, A., Kolasinski, W., Koga, R., Elder, J., Osborn, J., Martin, R., and Ghoniem, N. Experimental and analytical investigation of single event, multiple bit upsets in poly-silicon load, 64 k* 1 nmos srams. *IEEE Transactions on Nuclear Science*, 35(6):1673–1677, 1988.
- [Blanchard and Ghoniem, 1989a] Blanchard, J. P. and Ghoniem, N. M. An eigenfunction approach to singular thermal stresses in bonded strips. *Journal of thermal stresses*, 12(4):501–527, 1989a.
- [Blanchard and Ghoniem, 1989b] Blanchard, J. P. and Ghoniem, N. M. Relaxation of thermal stress singularities in bonded viscoelastic quarter planes. 1989b.
- [Chou and Ghoniem, 1989] Chou, S. and Ghoniem, N. M. On precipitate dissolution using the cascade slowing-down theory. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 42(1):145–148, 1989.
- [Ghoniem, 1989a] Ghoniem, N. Stochastic theory of diffusional planar-atomic clustering and its application to dislocation loops. *Physical Review B*, 39(16):11810, 1989a.

- [Ghoniem, 1989b] Ghoniem, N. Use of ferritic steels in the design of fusion reactors. *Transactions of the American Nuclear Society;(USA)*, 60(CONF-891103-), 1989b.
- [Ghoniem and Whitley, 1989] Ghoniem, N. and Whitley, J. Fusion neutron test facility requirements for interactive effects in structural and high-heat-flux components. *Journal of Fusion Energy*, 8:157–167, 1989.
- [Grotz et al., 1989a] Grotz, S., Ghoniem, N., Bartlit, J., Bathke, C., Blanchard, J., Cheng, E., Chu, Y., Conn, R., Cooke, P., Creedon, R., et al. Overview of the titan-i fusion-power core. *Fusion Engineering and Design*, 9:359–365, 1989a.
- [Grotz et al., 1989b] Grotz, S., Hua, T., Sze, D., Cheng, E., Creedon, R., Wong, C., Herring, J., Klein, A., Snead, L., Steiner, D., et al. Blanket concepts for the aries commercial tokamak reactor study. 1989b.
- [Hasan et al., 1989] Hasan, M., Blanchard, J., Ghoniem, N., Group, T. R., et al. Thermal-hydraulic and structural design for the lithium-cooled titan-i reversed-field-pinch reactor. *Fusion Engineering and Design*, 9:425–430, 1989.
- [Issacci et al., 1989] Issacci, F., Catton, I., Heiss, A., and Ghoniem, N. Analysis of heat pipe vapor dynamics. *Chemical Engineering Communications*, 85(1):85–94, 1989.
- [Najmabadi et al., 1989] Najmabadi, F., Conn, R., Bartlit, J., Bathke, C., Beecraft, W., Blanchard, J., Bromberg, L., Brooks, J., Cheng, E., Cohn, D., et al. The aries tokamak fusion reactor study. In *IEEE Thirteenth Symposium on Fusion Engineering*, pages 1021–1026. IEEE, 1989.
- [Santarius et al., 1989] Santarius, J., Blanchard, J., Emmert, G., Sviatoslavsky, I., Wittenberg, L., Ghoniem, N., Hasan, M., Mau, T., Greenspan, E., Herring, J., et al. Energy conversion options for aries-iii-a conceptual d-/sup 3/he tokamak reactor. In *IEEE Thirteenth Symposium on Fusion Engineering*, pages 1039–1042. IEEE, 1989.
- [Sharafat et al., 1989a] Sharafat, S., Ghoniem, N., Cooke, P., Group, T. R., et al. Material selection for the titan reversed-field pinch reactor. *Fusion Engineering and Design*, 8:305–310, 1989a.

- [Sharafat et al., 1989b] Sharafat, S., Ghoniem, N., and Yee, L. Silicon-carbide composite materials for the aries-i reactor study. In *IEEE Thirteenth Symposium on Fusion Engineering*, pages 1344–1347. IEEE, 1989b.
- [Stone and Ghoniem, 1989] Stone, C. A. and Ghoniem, N. M. Modeling the early stages of thin film formation by energetic atom deposition. *Metallurgical Transactions A*, 20:2609–2617, 1989.
- [Walgraef and Ghoniem, 1989] Walgraef, D. and Ghoniem, N. M. Spatial instabilities and dislocation-loop ordering in irradiated materials. *Physical Review B*, 39(13):8867, 1989.
- [Wong et al., 1989] Wong, C., Cheng, E., Creedon, R., Leuer, J., Schultz, K., Grotz, S., Ghoniem, N., Hasan, M., Martin, R., Najmabadi, F., et al. Blanket design for the aries-i tokamak reactor. In *IEEE Thirteenth Symposium on Fusion Engineering*, pages 1035–1038. IEEE, 1989.
- [Amodeo and Ghoniem, 1990] Amodeo, R. J. and Ghoniem, N. M. Dislocation dynamics. i. a proposed methodology for deformation micromechanics. *Physical Review B*, 41(10):6958, 1990.
- [Blanchard and Ghoniem, 1990] Blanchard, J. P. and Ghoniem, N. M. Analysis of singular stress fields in duplex fusion components. *Journal of Nuclear Materials*, 172(1):54–70, 1990.
- [Ghoniem, 1990] Ghoniem, N. Nucleation and growth theory of cavity evolution under conditions of cascade damage and high helium generation. *Journal of nuclear materials*, 174(2-3):168–177, 1990.
- [Ghoniem and Amodeo, 1990] Ghoniem, N. and Amodeo, R. Numerical simulation Of dislocation patterns during plastic deformation. In *Patterns, defects and materials instabilities*, pages 303–329. Springer Netherlands Dordrecht, 1990.
- [Ghoniem and Walgraef, 1990] Ghoniem, N. and Walgraef, D. Patterns, defects, and materials instabilities. 1990.
- [Ghoniem et al., 1990] Ghoniem, N. M., Matthews, J., and Amodeo, R. J. A dislocation model for creep in engineering materials. *Res Mechanica;(UK)*, 29(3), 1990.

- [Issacci et al., 1990] Issacci, F., Catton, I., and Ghoniem, N. M. Startup transient modelling of vapor flow in heat pipes. In *International Heat Transfer Conference Digital Library*. Begel House Inc., 1990.
- [Sharafat and Ghoniem, 1990] Sharafat, S. and Ghoniem, N. M. Non-equilibrium agglomeration of helium-vacancy clusters in irradiated materials. *Radiation effects and defects in solids*, 113(4):331–358, 1990.
- [Stone and Ghoniem, 1990] Stone, C. and Ghoniem, N. The effects of cluster size-dependent aggregation on thin film formation. *Vacuum*, 41(4-6):1111–1113, 1990.
- [Vicanek and Ghoniem, 1990] Vicanek, M. and Ghoniem, N. M. Two-group approach to the kinetics of particle cluster aggregation. 1990.
- [Walgraef and Ghoniem, 1990] Walgraef, D. and Ghoniem, N. Spatial instabilities and defect ordering in solids. In *Nonlinear Evolution of Spatio-Temporal Structures in Dissipative Continuous Systems*, pages 333–342. Springer US Boston, MA, 1990.
- [Chou and Ghoniem, 1991a] Chou, S. and Ghoniem, N. The effects of many-body interactions on point-defect generation. *Journal of nuclear materials*, 179:909–912, 1991a.
- [Chou and Ghoniem, 1991b] Chou, S. and Ghoniem, N. M. Molecular dynamics of collision cascades with composite pair-many-body potentials. *Physical Review B*, 43(4):2490, 1991b.
- [Ghoniem, 1991a] Ghoniem, N. Theory of microstructure evolution under fusion neutron irradiation. *Journal of nuclear materials*, 179:99–104, 1991a.
- [Ghoniem and Doran, 1991] Ghoniem, N. and Doran, D. Workshop on supercomputer utilization in radiation effects modeling.[fusion reactor materials]. Technical report, Pacific Northwest Lab., Richland, WA (USA), 1991.
- [GHONIEM and Kiritani, 1991] GHONIEM, N. and Kiritani, M. Cascade characteristics and defect production. *Journal of nuclear materials*, 179(B):1201–1212, 1991.
- [Ghoniem, 1991b] Ghoniem, N. M. Pressure vessel technology. 1991b.

- [Ghoniem, 1991c] Ghoniem, N. M. Radiation effects on structural materials. Technical report, California Univ., 1991c.
- [Ghoniem and Schultz, 1991] Ghoniem, N. M. and Schultz, K. R. Prospects for development of low activation materials. *Journal of Fusion Energy*, 10:53–62, 1991.
- [Issacci et al., 1991] Issacci, F., Catton, I., and Ghoniem, N. Vapor dynamics of heat pipe start-up. 1991.
- [Martin and Ghoniem, 1991] Martin, R. and Ghoniem, N. A hybrid finite-element/particle-simulation method for the analysis of semiconductor transients and bipolar transport. *Solid-state electronics*, 34(6):573–581, 1991.
- [Najmabadi et al., 1991] Najmabadi, F., Conn, R., TEAM:, A., Bathke, C., Bromberg, L., Cheng, E., Cohn, D., Cooke, P., Creedon, R., Ehst, D., et al. The aries-i tokamak reactor study. *Fusion Technology*, 19(3P2A):783–790, 1991.
- [Orient, 1991] Orient, G. E. *Analysis of steady state propagating cracks in metals under creep conditions*. Ph.D. thesis, University of California, Los Angeles, 1991.
- [Stone and Ghoniem, 1991] Stone, C. and Ghoniem, N. The influence of low-energy particle-surface interactions on the initial stages of thin film formation. *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films*, 9(3):759–767, 1991.
- [Tillack et al., 1991] Tillack, M., Youssef, M., Abdou, M., Raffray, A., Eggleston, J., El-Azab, A., Gorbis, Z., Issacci, F., Jun, I., Sharafat, S., et al. Design and analysis of the prometheus wetted wall ife reactor cavity. In *[Proceedings] The 14th IEEE/NPSS Symposium Fusion Engineering*, pages 223–226. IEEE, 1991.
- [Walgraef and Ghoniem, 1991] Walgraef, D. and Ghoniem, N. On the growth and form of dislocation patterns. In *Growth and Form: Non-linear Aspects*, pages 431–439. Springer US Boston, MA, 1991.
- [Adolph et al., 1992] Adolph, J., Akhsakhalyan, A., Alonso, J., Anthony, B., Aoki, K., Arata, Y., Arena, A., Bai, G., Balasubramanian, T., Banerjee, S., et al. Jervis, tr, 138 jin, z.-j., 98. *Thin Solid Films*, 207:330, 1992.

- [El-Azab and Ghoniem, 1992] El-Azab, A. and Ghoniem, N. Molecular dynamics study of the displacement threshold surfaces and the stability of frenkel pairs in β -sic. *Journal of nuclear materials*, 191:1110–1113, 1992.
- [Ghoniem, 1992a] Ghoniem, N. Non-linear phenomena in material science ii. 1992a.
- [Ghoniem, 1992b] Ghoniem, N. Summary of final report on the doe grant de-fg03-84er52110 with ucla on radiation effects on structural materials. Technical report, 1992b.
- [Ghoniem, 1992c] Ghoniem, N. M. High-temperature mechanical and material design for sic composites. *Journal of nuclear materials*, 191:515–519, 1992c.
- [Ghoniem, 1992d] Ghoniem, N. M. Radiation effects and micromechanics of sic/sic composites. annual technical report, november 15, 1991–november 14, 1992. Technical report, California Univ., Los Angeles, CA (United States). Dept. of Mechanical . . . , 1992d.
- [Hanchen and Ghoniem, 1992] Hanchen, H. and Ghoniem, N. Linear stability analysis of helium-filled cavities in sic. *Journal of Nuclear Materials (Journal des Matériaux Nucleaires);(Netherlands)*, 191, 1992.
- [Huang and Ghoniem, 1992] Huang, H. and Ghoniem, N. Linear stability analysis of helium-filled cavities in sic. *Journal of nuclear materials*, 191:607–610, 1992.
- [Stone et al., 1992] Stone, C., Vicanek, M., and Ghoniem, N. On the numerical accuracy of the fokker-planck approximation to the hierarchy of master equations. *Journal of Computational Physics*, 102(2):425, 1992.
- [Vicanek and Ghoniem, 1992a] Vicanek, M. and Ghoniem, N. Two-group approach to the kinetics of particle cluster aggregation. *Journal of Computational Physics*, 101(1):1–10, 1992a.
- [Vicanek and Ghoniem, 1992b] Vicanek, M. and Ghoniem, N. M. The effects of mobility coalescence on the evolution of surface atomic clusters. *Thin solid films*, 207(1-2):90–97, 1992b.

- [Abdou et al., 1993] Abdou, M., Ying, A., Tillack, M., Ghoniem, N., Waganer, L., Driemeyer, D., Linford, G., and Drake, D. Research and development assessments for prometheus heavy ion and laser driven inertial fusion energy reactor designs. In *15th IEEE/NPSS Symposium. Fusion Engineering*, volume 2, pages 989–992. IEEE, 1993.
- [Chou and Ghoniem, 1993] Chou, S. and Ghoniem, N. Molecular-dynamics simulations of low-energy copper atom interaction with copper surfaces. *Modelling and Simulation in Materials Science and Engineering*, 1(5):731, 1993.
- [El-Azab and Ghoniem, 1993a] El-Azab, A. and Ghoniem, N. Green’s function for the elastic field of an edge dislocation in a finite orthotropic medium. *International journal of fracture*, 61(1):17–37, 1993a.
- [El-Azab and Ghoniem, 1993b] El-Azab, A. and Ghoniem, N. Micromechanics of fiber pull-out and crack bridging in scs-6 sic-cvd sic composite system at high-temperature. Technical report, 1993b.
- [Ghoniem and Walgraef, 1993] Ghoniem, N. and Walgraef, D. Evolution dynamics of 3d periodic microstructures in irradiated materials. *Modelling and Simulation in Materials Science and Engineering*, 1(5):569, 1993.
- [Ghoniem, 1993] Ghoniem, N. M. Damage evolution in fusion structures and possible approaches to constitutive modeling. In *Summary Report: Workshop on Materials Issues for Severe Environments: Held at Radisson Hotel La Jolla, La Jolla, California, June 23-25, 1993*, 93, page 36. Institute for Mechanics and Materials, University of California, San Diego, 1993.
- [Hanchen and Ghoniem, 1993] Hanchen, H. and Ghoniem, N. Neutron displacement damage cross sections for sic. *Journal of nuclear materials*, 199(3):221–230, 1993.
- [Hasan et al., 1993] Hasan, M. Z., Ghoniem, N. M., Blanchard, J. P., Team, T., et al. Thermal-hydraulic and structural design of the titan-i reversed-field-pinch fusion power core. *Fusion engineering and design*, 23(2-3):115–132, 1993.
- [Issacci et al., 1993] Issacci, F., Catton, I., and Ghoniem, N. Vapor dynamics of heat pipe startup. *SPACE NUCLEAR POWER SYSTEMS*, 1:1002–1002, 1993.

- [Najmabadi et al., 1993a] Najmabadi, F., Conn, R. W., Krakowski, R. A., Schultz, K. R., Steiner, D., Bartlit, J. R., Bathke, C. G., Blanchard, J. P., Cheng, E. T., Chu, Y.-Y., et al. Introduction and synopsis of the titan reversed-field-pinch fusion-reactor study. *Fusion engineering and design*, 23(2-3):69–80, 1993a.
- [Najmabadi et al., 1993b] Najmabadi, F., Wong, C. P., Grotz, S. P., Schultz, K. R., Cheng, E. T., Cooke, P. I., Creedon, R. L., Ghoniem, N. M., Krakowski, R. A., Hasan, M. Z., et al. The titan-i reversed-field-pinch fusion-power-core design. *Fusion engineering and design*, 23(2-3):81–98, 1993b.
- [Perez and Ghoniem, 1993] Perez, F. and Ghoniem, N. Chemical compatibility of sic composite structures with fusion reactor helium coolant at high temperatures. *Fusion engineering and design*, 22(4):415–426, 1993.
- [Sharafat et al., 1993] Sharafat, S., Ghoniem, N. M., Cooke, P. I., Martin, R. C., Najmabadi, F., Schultz, K. R., Wong, C. P., Team, T., et al. Materials selection criteria and performance analysis for the titan-ii reversed-field-pinch fusion power core. *Fusion engineering and design*, 23(2-3):201–217, 1993.
- [Stone et al., 1993] Stone, C., Vicanek, M., and Ghoniem, N. On the numerical accuracy of the fokker-planck approximation to the hierarchy of master equations. *Journal of Computational Physics*, 104(2):451–456, 1993.
- [Tillack et al., 1993] Tillack, M., Ghoniem, N., Raffray, A., and Abdou, M. The prometheus ife reactor cavity. In *15th IEEE/NPSS Symposium. Fusion Engineering*, volume 2, pages 993–996. IEEE, 1993.
- [Wong et al., 1993] Wong, C. P., Grotz, S. P., Najmabadi, F., Blanchard, J. P., Cheng, E. T., Cooke, P. I., Creedon, R. L., Ghoniem, N. M., Gierszewski, P. J., Hasan, M. Z., et al. The titan-ii reversed-field-pinch fusion-power-core design. *Fusion engineering and design*, 23(2-3):173–200, 1993.
- [Abdou et al., 1994] Abdou, M., Ying, A., Tillack, M., Ghoniem, N., Waganer, L., Driemeyer, D., Linford, G., and Drake, D. Critical technical issues and evaluation and comparison studies for inertial fusion energy reactors. *Fusion engineering and design*, 23(4):251–297, 1994.

- [El-Azab and Ghoniem, 1994a] El-Azab, A. and Ghoniem, N. Mechanical response and fatigue analysis of the first wall of the prometheus ife reactor. Technical report, University of California, Los Angeles, CA (United States), 1994a.
- [El-Azab and Ghoniem, 1994b] El-Azab, A. and Ghoniem, N. Molecular dynamics simulations of low energy cascades in β -sic. *Radiation effects and defects in solids*, 129(1-2):117–126, 1994b.
- [El-Azab and Ghoniem, 1994c] El-Azab, A. and Ghoniem, N. Phenomenological inelastic constitutive equations for sic and sic fibers under irradiation. *Fusion technology*, 26(4):1250–1264, 1994c.
- [El-Azab and Ghoniem, 1994d] El-Azab, A. and Ghoniem, N. Postirradiation fiber debonding and pull-out in sic-sic composites. *Journal of nuclear materials*, 212:845–848, 1994d.
- [Hanchen and Ghoniem, 1994] Hanchen, H. and Ghoniem, N. Molecular dynamics calculations of defect energetics in [beta]-sic. *Journal of Nuclear Materials (Journal des Materiaux Nucleaires);(Netherlands)*, 212, 1994.
- [Huang and Ghoniem, 1994] Huang, H. and Ghoniem, N. Molecular dynamics calculations of defect energetics in β -sic. *Journal of nuclear materials*, 212:148–153, 1994.
- [Huang et al., 1994] Huang, H., Wong, J., Ghoniem, N., and Baskes, M. Defect energetics calculations of sic using three representative empirical potentials. Technical report, Oak Ridge National Lab.(ORNL), Oak Ridge, TN (United States), 1994.
- [Pegoraro et al., 1994] Pegoraro, F., El-Azab, A., Ghoniem, N., Tucker, E. C., Gilligan, J. G., Zucchetti, M., Honda, T., Maki, K., Okazaki, T., Uda, T., et al. Authors-december 1994. *Fusion Technology*, 26(4):1237–1240, 1994.
- [Perez and Ghoniem, 1994] Perez, F. and Ghoniem, N. Chemical compatibility of some ceramic matrix composite structures with fusion reactor helium coolant at high temperatures. Technical report, University of California, Los Angeles, CA (United States), 1994.
- [El-Azab and Ghoniem, 1995a] El-Azab, A. and Ghoniem, N. Incubation time for sub-critical crack propagation in sic-sic composites. Technical

report, Oak Ridge National Lab.(ORNL), Oak Ridge, TN (United States), 1995a.

[El-Azab and Ghoniem, 1995b] El-Azab, A. and Ghoniem, N. Investigation of incubation time for sub-critical crack propagation in sic sic composites. *Journal of nuclear materials*, 219:101–109, 1995b.

[El-Azab and Ghoniem, 1995c] El-Azab, A. and Ghoniem, N. Mechanical response and fatigue analysis of the first wall structure of the prometheus ife reactor. *Fusion engineering and design*, 27:536–543, 1995c.

[El-Azab and Ghoniem, 1995d] El-Azab, A. and Ghoniem, N. Stability and evolution of crack systems in dissipative material. Technical report, University of California, Los Angeles, CA (United States), 1995d.

[El-Azab and Ghoniem, 1995e] El-Azab, A. and Ghoniem, N. Time-dependent micro mechanics in damaged high-temperature ceramic composites. Technical report, University of California, Los Angeles, CA (United States), 1995e.

[El-Azab and Ghoniem, 1995f] El-Azab, A. and Ghoniem, N. Viscoelastic analysis of mismatch stresses in ceramic matrix composites under high-temperature neutron irradiation. *Mechanics of materials*, 20(4):291–303, 1995f.

[Ghoniem and El-Azab, 1995] Ghoniem, N. and El-Azab, A. Thermo-mechanical design of the grazing incidence metal mirror of the prometheus-l ife reactor. *Fusion engineering and design*, 29:89–97, 1995.

[Ghoniem, 1995] Ghoniem, N. M. Plastic and fracture instabilities in materials: Presented at the 1995 joint asme applied mechanics and materials summer meeting, los angeles, california, june 28-30, 1995. 1995.

[Huang and Ghoniem, 1995] Huang, H. and Ghoniem, N. M. Formulation of a moment method for multidimensional fokker-planck equations. *Physical Review E*, 51(6):5251, 1995.

[Huang et al., 1995] Huang, H., Ghoniem, N. M., Wong, J. K., and Baskes, M. Molecular dynamics determination of defect energetics in beta-sic using three representative empirical potentials. *Modelling and Simulation in Materials Science and Engineering*, 3(5):615, 1995.

- [Walgraef and Ghoniem, 1995] Walgraef, D. and Ghoniem, N. Nonlinear dynamics of self-organized microstructure under irradiation. *Physical Review B*, 52(6):3951, 1995.
- [Issacci et al., 1996] Issacci, F., Ghoniem, N., Catton, I., et al. Vapor flow patterns during a start-up transient in heat pipes. Technical report, 1996.
- [Walgraef et al., 1996] Walgraef, D., Lauzeral, J., and Ghoniem, N. Theory and numerical simulations of defect ordering in irradiated materials. *Physical Review B*, 53(22):14782, 1996.
- [Ghoniem, 1997] Ghoniem, N. M. Radiation effects and micromechanics of sic/sic composites (december 1, 1990–november 14, 1993) and modeling the mechanical behavior of sic/sic composites in fusion environments (november 15, 1993–november 14, 1996). final report, december 1, 1990–november 14, 1996. Technical report, Univ. of California, Dept. of Mechanical and Aerospace Engineering, Los . . . , 1997.
- [Huang and Ghoniem, 1997] Huang, H. and Ghoniem, N. A swelling model for stoichiometric sic at temperatures below 1000 c under neutron irradiation. *Journal of nuclear materials*, 250(2-3):192–199, 1997.
- [Lauzeral et al., 1997] Lauzeral, J., Walgraef, D., and Ghoniem, N. Rose deformation patterns in thin films irradiated by focused laser beams. *Physical review letters*, 79(14):2706, 1997.
- [Walgraef et al., 1997] Walgraef, D., Ghoniem, N., and Lauzeral, J. Deformation patterns in thin films under uniform laser irradiation. *Physical Review B*, 56(23):15361, 1997.
- [Ghoniem, 1998a] Ghoniem, N. Chemical compatibility and high temperature limits for structural materials. In *APEX Study Meeting, Sandia National Laboratories, Albuquerque, NM*. 1998a.
- [Ghoniem, 1998b] Ghoniem, N. High temperature oxidation of tungsten and molybdenum. In *APEX study group meeting, The University of California at Los Angeles*. 1998b.
- [Ghoniem and Bacaloni, 1998] Ghoniem, N. and Bacaloni, M. Three dimensional elastic fields of curved parametric dislocations in crystalline materials. In *APS March Meeting Abstracts*, pages U39–15. 1998.

- [Ghoniem and Singh, 1998] Ghoniem, N. and Singh, B. Hardening and plastic instabilities of irradiated materials. In *Workshop on Hardening and Dislocation Patterning in Metals*. 1998.
- [Ghoniem, 1998c] Ghoniem, N. M. Atomic processes during damage production and defect retention. *Journal of nuclear materials*, 258:113–123, 1998c.
- [Perkins et al., 1998] Perkins, L., Logan, B., Rosen, M., de la Rubia, T. D., Ghoniem, N., Ditmire, T., and Wolfer, W. High-intensity-laser-driven micro neutron sources for fusion materials research at high fluence. 1998.
- [Bloom et al., 1999] Bloom, E., Ghoniem, N., Jones, R., Kurtz, R., Odette, G., Rowecliffe, A., Smith, D., and Wiffen, F. Advanced materials program. *appendix D of the VLT roadmap*, 1999.
- [Bulatov et al., 1999] Bulatov, V., Phillips, R., Kaxiras, E., and Ghoniem, N. Multiscale modeling of materials. materials research society symposium proceedings: Volume 538. 1999.
- [Demetriou et al., 1999] Demetriou, M., Lavine, A., and Ghoniem, N. Numerical simulation of plasma heating of a composite powder particle. Technical report, Univ. of California, Los Angeles, CA (US), 1999.
- [Ghoniem and Singh, 1999] Ghoniem, N. and Singh, B. Dislocation dynamics study of the onset of plastic instabilities in irradiated materials. 1999.
- [Ghoniem, 1999a] Ghoniem, N. M. Clustering theory of atomic defects. *Radiation effects and defects in solids*, 148(1-4):269–318, 1999a.
- [Ghoniem, 1999b] Ghoniem, N. M. Curved parametric segments for the stress field of 3-d dislocation loops. 1999b.
- [Ghoniem and Sun, 1999a] Ghoniem, N. M. and Sun, L. Fast-sum method for the elastic field of three-dimensional dislocation ensembles. *Physical Review B*, 60(1):128, 1999a.
- [Ghoniem and Sun, 1999b] Ghoniem, N. M. and Sun, L. Structure, structural phase transitions, mechanical properties, defects, etc-fast-sum method for the elastic field of three-dimensional dislocation ensembles. *Physical Review-Section B-Condensed Matter*, 60(1):128–140, 1999b.

- [Huang et al., 1999] Huang, H., Ghoniem, N., Diaz de La Rubia, T., Rhee, M., Zbib, H., and Hirth, J. Stability of dislocation short-range reactions in bcc crystals. 1999.
- [Johnson and Ghoniem, 1999] Johnson, G. A. and Ghoniem, N. M. Hierarchical modeling of c and si nano-cluster nucleation utilizing quantum and statistical mechanics. *Journal of computer-aided materials design*, 6:337–347, 1999.
- [Kiritani, 1999] Kiritani, M. Damage production and accumulation. *Journal of Nuclear Materials*, 271:540–552, 1999.
- [Sharafat et al., 1999] Sharafat, S., Martinez, R., and Ghoniem, N. Design window for tungsten alloys. In *UCLA, APEX Study Group Meeting*. 1999.
- [Walgraef and Ghoniem, 1999] Walgraef, D. and Ghoniem, N. Modeling laser-induced deformation patterns: nonlinear effects and numerical analysis. *Journal of computer-aided materials design*, 6:323–335, 1999.
- [Zinkle et al., 1999] Zinkle, S., Majumdar, S., Ghoniem, N., and Sharafat, S. Materials considerations and data base. 1999.
- [Ghoniem, 2000a] Ghoniem, N. S.-s tong, and lz, sun. *Phys. Rev. B*, 61(1), 2000a.
- [Ghoniem et al., 2000a] Ghoniem, N., M, Tong, S.-H., and Sun, L. Parametric dislocation dynamics: a thermodynamics-based approach to investigations of mesoscopic plastic deformation. *Physical Review B*, 61(2):913, 2000a.
- [Ghoniem et al., 2000b] Ghoniem, N., Singh, B., Sun, L., and de la Rubia, T. Dislocation decoration with nano-scale defect clusters in irradiated metals. In *Fusion materials. Semiannual progress report for the period ending December 31, 1999*, pages 222–223. 2000b.
- [Ghoniem et al., 2000c] Ghoniem, N., Singh, B., Sun, L., and de la Rubia, T. D. Interaction and accumulation of glissile defect clusters near dislocations. *Journal of nuclear materials*, 276(1-3):166–177, 2000c.
- [Ghoniem et al., 2000d] Ghoniem, N., Sun, L., Singh, B., and Tong, S.-H. Investigations of radiation hardening and plastic instability in fcc metals. In *Fusion materials. Semiannual progress report for the period ending December 31, 1999*, pages 226–228. 2000d.

- [Ghoniem et al., 2000e] Ghoniem, N., Tong, S., and Sun, L. Structure, structural phase transitions, mechanical properties, defects, etc-parametric dislocation dynamics: A thermodynamics-based approach to investigations of mesoscopic plastic. *Physical Review-Section B-Condensed Matter*, 61(2):913–927, 2000e.
- [Ghoniem et al., 2000f] Ghoniem, N., Tongo, S.-H., Singh, B., and Huang, J. Mechanisms of radiation-induced hardening and flow localization in irradiated fcc metals. In *International conference on computational engineering sciences (ICES 2K). Symposium on mechanics of materials from nano to meso scale*. 2000f.
- [Ghoniem, 2000b] Ghoniem, N. M. Computational methods for mesoscopic, inhomogeneous plastic deformation. *Materials Instabilities*, pages 75–158, 2000b.
- [Perkins et al., 2000] Perkins, L., Logan, B., Rosen, M., Perry, M., de La Rubia, T. D., Ghoniem, N., Ditmire, T., Springer, P., and Wilks, S. The investigation of high intensity laser driven micro neutron sources for fusion materials research at high fluence. *Nuclear fusion*, 40(1):1, 2000.
- [Sharafat and Ghoniem, 2000a] Sharafat, S. and Ghoniem, N. Comparison of a microstructure evolution model with experiments on irradiated vanadium. *Journal of nuclear materials*, 283:789–793, 2000a.
- [Sharafat and Ghoniem, 2000b] Sharafat, S. and Ghoniem, N. Thermodynamic stability assessment of oxides, nitrides, and carbides in liquid sn-25li. *APEX Study, UCLA (August 2000)*, 2000b.
- [Sharafat et al., 2000a] Sharafat, S., Kobayashi, A., Chen, S., and Ghoniem, N. Production of high-density ni-bonded tungsten carbide coatings using an axially fed dc-plasmatron. *Surface and Coatings Technology*, 130(2-3):164–172, 2000a.
- [Sharafat et al., 2000b] Sharafat, S., Kobayashi, A., Ogden, V., and Ghoniem, N. Development of composite thermal barrier coatings with anisotropic microstructure. *Vacuum*, 59(1):185–193, 2000b.
- [Sun et al., 2000] Sun, L., Ghoniem, N., Tong, S.-H., and Singh, B. 3d dislocation dynamics study of plastic instability in irradiated copper. *Journal of nuclear materials*, 283:741–745, 2000.

- [Wong et al., 2000] Wong, C., Nygren, R., Baxi, C., Fogarty, P., Ghoniem, N., Khater, H., McCarthy, K., Merrill, B., Nelson, B., Reis, E., et al. Helium-cooled refractory alloys first wall and blanket evaluation. *Fusion Engineering and Design*, 49:709–717, 2000.
- [Zinkle and Ghoniem, 2000] Zinkle, S. and Ghoniem, N. Operating temperature windows for fusion reactor structural materials. *Fusion Engineering and design*, 51:55–71, 2000.
- [Abdou et al., 2001] Abdou, M. A., Ying, A., Morley, N., Gulec, K., Smolentsev, S., Kotschenreuther, M., Malang, S., Zinkle, S., Rognlien, T., Fogarty, P., et al. On the exploration of innovative concepts for fusion chamber technology. *Fusion Engineering and Design*, 54(2):181–247, 2001.
- [Demetriou et al., 2001] Demetriou, M. D., Ghoniem, N. M., and Lavine, A. S. Kinetic modeling of phase selection during non-equilibrium. *Acta Materialia*, page 39, 2001.
- [Ghoniem, 2001] Ghoniem, N. Fusion conditions: Radiation damage correlation. *Encyclopedia of Materials: Science and Technology*, pages 3413–3417, 2001.
- [Ghoniem and Huang, 2001a] Ghoniem, N. and Huang, J. Atomic and mesoscopic simulations-2 plasticity, microstructure and fracture at mesoscale-computer simulations of mesoscopic plastic deformation with differential geometric forms for the elastic. *Journal de Physique-Colloques*, 11(5):53–60, 2001a.
- [Ghoniem and Huang, 2001b] Ghoniem, N. and Huang, J. Computer simulations of mesoscopic plastic deformation with differential geometric forms for the elastic field of parametric dislocations: Review of recent progress. *Le Journal de Physique IV*, 11(PR5):Pr5–53, 2001b.
- [Ghoniem et al., 2001a] Ghoniem, N., Huang, J., and Wen, M. Control of plastic flow in small volumes with nano-clusters. In *USACM: Sixth US National Congress on Computational Mechanics Abstracts*, page 185. 2001a.
- [Ghoniem et al., 2001b] Ghoniem, N., Tong, S., Huang, J., and Singh, B. New insights into dislocation-defect interaction from large-scale computer simulations. In *10th International conference on fusion reactor materials*. 2001b.

- [Ghoniem et al., 2001c] Ghoniem, N., Tong, S., Singh, B., and Huang, J. Radiation hardening and the dynamics of dislocation-defect interaction in iron: A comparison between theory and experiment. In *10th International conference on fusion reactor materials*. 2001c.
- [Ghoniem et al., 2001d] Ghoniem, N., Tong, S.-H., Singh, B., and Sun, L. On dislocation interaction with radiation-induced defect clusters and plastic flow localization in fcc metals. *Philosophical Magazine A*, 81(11):2743–2764, 2001d.
- [Ghoniem et al., 2001e] Ghoniem, N., Walgraef, D., and Zinkle, S. Theory and experiment of nanostructure self-organization in irradiated materials. *Journal of computer-aided materials design*, 8(1):1–38, 2001e.
- [Odette et al., 2001a] Odette, G., Wirth, B., Bacon, D., and Ghoniem, N. Multiscale. *MRS BULLETIN*, page 177, 2001a.
- [Odette et al., 2001b] Odette, G., Wirth, B., Bacon, D., and Ghoniem, N. Materials research by means of multiscale computer simulation-multiscale-multiphysics modeling of radiation-damaged materials: Embrittlement of pressure-vessel steels. *MRS Bulletin-Materials Research Society*, 26(3):176–181, 2001b.
- [Odette et al., 2001c] Odette, G., Wirth, B., Bacon, D., and Ghoniem, N. Multiscale-multiphysics modeling of radiation-damaged materials: embrittlement of pressure-vessel steels. *Mrs Bulletin*, 26(3):176–181, 2001c.
- [Sharafat et al., 2001] Sharafat, S., Demetriou, M., Ghoniem, N., Williams, B., and Nygren, R. Enhanced surface heat removal using a porous tungsten heat exchanger. *Fusion technology*, 39(2P2):863–867, 2001.
- [Singh et al., 2001] Singh, B., Ghoniem, N., and Trinkaus, H. Experiment-based modeling of localized plasticity in irradiated metals. In *10th International conference on fusion reactor materials*. 2001.
- [Sun et al., 2001] Sun, L., Ghoniem, N., and Wang, Z. Analytical and numerical determination of the elastic interaction energy between glissile dislocations and stacking fault tetrahedra in fcc metals. *Materials Science and Engineering: A*, 309:178–183, 2001.
- [Tillack et al., 2001a] Tillack, M., Mau, T. K., Najmabadi, F., Zaghloul, M., Blair, D., Ghoniem, N., Wang, Z., Hu, Q., Morley, N., Quan, S., et al. Laser driver-chamber interface research. 2001a.

- [Tillack et al., 2001b] Tillack, M., Payne, S., Ghoniem, N., Zaghoul, M., and Latkowski, J. Damage threats and response of final optics for laser-fusion power plants. *Proc. Inertial Fusion Science and Applications*, pages 717–721, 2001b.
- [Wong et al., 2001] Wong, C., Barlcon, L., Corradini, M., Fogarty, P., Ghoniem, N., Majumdar, S., Malang, S., Mattas, R., McCarthy, K., Merrill, B., et al. Evaluation of the tungsten alloy vaporizing lithium first wall and blanket concept. *Fusion technology*, 39(2P2):815–822, 2001.
- [Zheng et al., 2001] Zheng, Y.-H. Z., Yang, X., Miya, K., Gulec, K., Smolentsev, S., Kotschenreuther, M., Malang, S., Zinkle, S., Rognlien, T., Fogarty, P., et al. Subject index of volume 54. *Fusion Engineering and Design*, 54:653–655, 2001.
- [Demetriou et al., 2002a] Demetriou, M. D., Ghoniem, N. M., and Lavine, A. S. Computation of metastable phases in tungsten-carbon system. *Journal of phase equilibria*, 23:305–309, 2002a.
- [Demetriou et al., 2002b] Demetriou, M. D., Ghoniem, N. M., and Lavine, A. S. Effects of nucleation transience on crystallization kinetics under strongly nonequilibrium conditions. *The Journal of chemical physics*, 117(23):10739–10743, 2002b.
- [Demetriou et al., 2002c] Demetriou, M. D., Ghoniem, N. M., and Lavine, A. S. Kinetic modeling of phase selection during non-equilibrium solidification of a tungsten-carbon system. *Acta materialia*, 50(6):1421–1432, 2002c.
- [Demetriou et al., 2002d] Demetriou, M. D., Ghoniem, N. M., and Lavine, A. S. Modeling of graphitization kinetics during peritectic melting of tungsten carbide. *Acta materialia*, 50(20):4995–5004, 2002d.
- [Demetriou et al., 2002e] Demetriou, M. D., Lavine, A. S., and Ghoniem, N. M. Feasibility of plasma spraying in developing mmc coatings: modeling the heating of coated powder particles. *J. Manuf. Sci. Eng.*, 124(1):58–64, 2002e.
- [Ghoniem et al., 2002a] Ghoniem, N., Tong, S., Huang, J., Singh, B., and Wen, M. Mechanisms of dislocation-defect interactions in irradiated metals investigated by computer simulations. *Journal of nuclear materials*, 307:843–851, 2002a.

- [Ghoniem and Cho, 2002] Ghoniem, N. M. and Cho, K. The emerging role of multiscale modeling in nano-and micro-mechanics of materials. *Computer Modeling in Engineering and Sciences*, 3(2):147–174, 2002.
- [Ghoniem et al., 2002b] Ghoniem, N. M., Huang, J., and Wang, Z. Affine covariant-contravariant vector forms for the elastic field of parametric dislocations in isotropic crystals. *Philosophical Magazine Letters*, 82(2):55–63, 2002b.
- [Han and Ghoniem, 2002] Han, X. and Ghoniem, N. Elastic green’s functions and the stress field of an elementary dislocation in anisotropic multilayered thin films. 2002.
- [Hu et al., 2002] Hu, Q.-y., Kim, H.-j., Xie, Y.-h., and Ghoniem, N. M. Precise self-organization of quantum dots with interfacial dislocation arrays: Computer modelling and experimental design. 2002.
- [Huang and Ghoniem, 2002a] Huang, J. and Ghoniem, N. M. Accuracy and convergence of parametric dislocation dynamics. *Modelling and Simulation in Materials Science and Engineering*, 11(1):21, 2002a.
- [Huang and Ghoniem, 2002b] Huang, J. and Ghoniem, N. M. The dynamics of dislocation interaction with sessile self-interstitial atom (sia) defect cluster atmospheres. *Computational materials science*, 23(1-4):225–234, 2002b.
- [Kobayashi et al., 2002] Kobayashi, A., Sharafat, S., and Ghoniem, N. M. Functionally graded zirconia composite coatings formed by gas tunnel type plasma spraying. *Transactions of the JWRI*, 31(1):49–54, 2002.
- [Martinez and Ghoniem, 2002] Martinez, R. and Ghoniem, N. The influence of crystal surfaces on dislocation interactions in mesoscopic plasticity: a combined dislocation dynamics-finite element approach. *CMES-Computer Modeling in Engineering and Sciences*, 3(2):229–243, 2002.
- [Sharafat et al., 2002] Sharafat, S., Kobayashi, A., Chen, Y., and Ghoniem, N. Plasma spraying of micro-composite thermal barrier coatings. *Vacuum*, 65(3-4):415–425, 2002.
- [Singh and Ghoniem, 2002] Singh, B. and Ghoniem, N. Aspects of plastic flow localization: Experiments, theory and modelling. In *9. International symposium on plasticity and its current applications (Plasticity’02)*. 2002.

- [Singh et al., 2002] Singh, B., Ghoniem, N., and Trinkaus, H. Experiment-based modelling of hardening and localized plasticity in metals irradiated under cascade damage conditions. *Journal of nuclear materials*, 307:159–170, 2002.
- [Walgraef and Ghoniem, 2002a] Walgraef, D. and Ghoniem, N. Effect of crystal anisotropy and adhesive forces on laser induced deformation patterns in covalently bonded thin films. *Physical Review B*, 65(15):155304, 2002a.
- [Walgraef and Ghoniem, 2002b] Walgraef, D. and Ghoniem, N. Semiconductors ii: Surface, interfaces, microstructures, and related topics-effect of crystal anisotropy and adhesive forces on laser induced deformation patterns in covalently bonded thin films. *Physical Review-Section B-Condensed Matter*, 65(15):155304–155304, 2002b.
- [Wirth et al., 2002] Wirth, B. D., Kurtz, R., Ghoniem, N., Odette, G., Srolovitz, D., Stoller, R., Zbib, H., and Zinkle, S. Multiscale modeling of radiation damage in fusion reactor materials. In *DOE OFES Budget Meeting Science in Technology Seminar*, volume 8, page 95. 2002.
- [ZINKLE et al., 2002] ZINKLE, S., SHARAFAT, S., GHONIEM, N., MAJUMDAR, S., MATTAS, R., and YOUCHISONG, D. Cpc wong,* l. barleon,* mh anderson, jg murphy, me sawan, in sviatoslavsky, ml corradini. 2002.
- [Demetriou et al., 2003] Demetriou, M. D., Ghoniem, N. M., and Lavine, A. S. Erratum: “effects of nucleation transience on crystallization kinetics under strongly nonequilibrium conditions” [j. chem. phys. 117, 10739 (2002)]. *The Journal of Chemical Physics*, 118(13):6120–6120, 2003.
- [Ghoniem et al., 2003a] Ghoniem, N., Busso, E., and Huang, H. First international conference on multiscale materials modelling(mmm). *Philosophical Magazine*, 83(31):483, 2003a.
- [Ghoniem et al., 2003b] Ghoniem, N., Wen, M., and Singh, B. Dislocation loop rafts and decoration in irradiated metals: Experimental evidence and computer simulations. In *11th International Conference on Fusion Reactor Materials*. 2003b.

- [Ghoniem, 2003] Ghoniem, N. M. Mechanisms of plastic and fracture instabilities for alloy development of fusion materials. final project report for period july 15, 1998-july 14, 2003. Technical report, University of California, Los Angeles, CA, 2003.
- [Ghoniem et al., 2003c] Ghoniem, N. M., Busso, E. P., Kioussis, N., and Huang, H. Multiscale modelling of nanomechanics and micromechanics: an overview. *Philosophical magazine*, 83(31-34):3475–3528, 2003c.
- [Han et al., 2003] Han, X., Ghoniem, N., and Wang, Z. Parametric dislocation dynamics of anisotropic crystals. *Philosophical Magazine*, 83(31-34):3705–3721, 2003.
- [Walgraef and Ghoniem, 2003a] Walgraef, D. and Ghoniem, N. Effects of glissile interstitial clusters on microstructure self-organization in irradiated materials. *Physical Review B*, 67(6):064103, 2003a.
- [Walgraef and Ghoniem, 2003b] Walgraef, D. and Ghoniem, N. Proof copy [bv8019] 040306prb. *PHYSICAL REVIEW B*, 67:0641XX, 2003b.
- [Walgraef and Ghoniem, 2003c] Walgraef, D. and Ghoniem, N. Structure, structural phase transitions, mechanical properties, defects, etc.-effects of glissile interstitial clusters on microstructure self-organization in irradiated materials. *Physical Review-Section B-Condensed Matter*, 67(6):64103–64103, 2003c.
- [Banerjee, 2004] Banerjee, S. A computational method for determination to the core structure of arbitrary-shape 3d dislocation loops. *Proc. of MMM-2, 2004*, 2004.
- [Ghoniem, 2004a] Ghoniem, N. Modeling laser effects on the final optics in simulated ife environments. Technical report, Univ. of California, Los Angeles, CA (United States), 2004a.
- [Ghoniem, 2004b] Ghoniem, N. M. Proceedings of second international conference on multiscale materials modeling: October 11-15, 2004, los angeles, california. 2004b.
- [Ghoniem and Kioussis, 2004] Ghoniem, N. M. and Kioussis, N. Hierarchical models of nanomechanics and micromechanics. *Handbook of Theor. & Comp. Nanotechnology*, pages 1–97, 2004.

- [Huang et al., 2004] Huang, J., Ghoniem, N., and Kratochvíl, J. On the sweeping mechanism of dipolar dislocation loops under fatigue conditions. *Modelling and Simulation in Materials Science and Engineering*, 12(5):917, 2004.
- [Johnson and Ghoniem, 2004] Johnson, G. A. and Ghoniem, N. M. Multi-scale modeling of si and c nanocluster nucleation during non-equilibrium gas phase processing. *Journal of Computational and Theoretical Nanoscience*, 1(1):29–39, 2004.
- [Noronha et al., 2004] Noronha, S., Huang, J., and Ghoniem, N. Multiscale modeling of the brittle to ductile transition. *Journal of nuclear materials*, 329:1180–1184, 2004.
- [Sharafat et al., 2004a] Sharafat, S., Ghoniem, N., Williams, B., and Babcock, J. An innovative solid breeder material for fusion applications. In *16th ANS Topical Meeting on the Technology of Fusion Energy, Madison WI*. 2004a.
- [Sharafat et al., 2004b] Sharafat, S., Ghoniem, N., Ying, A., et al. Ceramic foams: inspiring new solid breeder materials. In *Proceeding of the 12th International Workshop on Ceramic Breeder Blanket Interaction, Karlsruhe, Germany*, pages 1–22. 2004b.
- [Sharafat et al., 2004c] Sharafat, S., Ghoniem, N., and Zinkle, S. Thermodynamic stability of oxide, nitride, and carbide coating materials in liquid sn-25li. *Journal of nuclear materials*, 329:1429–1433, 2004c.
- [Sharafat et al., 2004d] Sharafat, S., Kobayashi, A., and Ghoniem, N. M. Application of high-power plasma gun for thermal cycle testing of refractory foams. *Vacuum*, 73(3-4):475–480, 2004d.
- [Wang et al., 2004a] Wang, Z., Ghoniem, N., and LeSar, R. Multipole representation of the elastic field of dislocation ensembles. *Physical Review B*, 69(17):174102, 2004a.
- [Wang et al., 2004b] Wang, Z., Ghoniem, N., and LeSar, R. Structure, structural phase transitions, mechanical properties, defects, etc.-multipole representation of the elastic field of dislocation ensembles. *Physical Review-Section B-Condensed Matter*, 69(17):174102–174102, 2004b.

- [Wang et al., 2004c] Wang, Z., McCabe, R. J., Ghoniem, N. M., LeSar, R., Misra, A., and Mitchell, T. E. Dislocation motion in thin cu foils: a comparison between computer simulations and experiment. *Acta materialia*, 52(6):1535–1542, 2004c.
- [Wen et al., 2004a] Wen, M., Ghoniem, N., and Singh, B. The influence of impurities and alloying on dislocation decoration and raft formation during neutron irradiation of bcc metals. In *2nd International Conference on Multiscale Materials Modeling*, pages 567–569. University of California, 2004a.
- [Wen et al., 2004b] Wen, M., Ghoniem, N., and Singh, B. Kinetic monte carlo simulations of dislocation decoration and raft formation in bcc-iron under cascade irradiation. In *Fusion materials. Semiannual progress report for the period ending December 31, 2003*, pages 201–208. 2004b.
- [BLANCHARD et al., 2005] BLANCHARD, J. P., SNEAD, L., and GHONIEM, N. Special issue on materials development for inertial fusion energy. *Journal of nuclear materials*, 347(3), 2005.
- [Ghoniem, 2005a] Ghoniem, N. M. Modeling the dynamics of dislocation ensembles. In *Handbook of Materials Modeling: Methods*, pages 2269–2286. Springer Netherlands Dordrecht, 2005a.
- [Ghoniem, 2005b] Ghoniem, N. M. A perspective on dislocation dynamics. In *Handbook of Materials Modeling: Methods*, pages 2871–2877. Springer Netherlands Dordrecht, 2005b.
- [Ghoniem, 2005c] Ghoniem, N. M. The role of theory and modeling in the development of materials for fusion energy. In *Handbook of Materials Modeling: Methods*, pages 2719–2729. Springer Netherlands Dordrecht, 2005c.
- [Ghoniem* and Han, 2005] Ghoniem*, N. M. and Han, X. Dislocation motion in anisotropic multilayer materials. *Philosophical Magazine*, 85(24):2809–2830, 2005.
- [Han and Ghoniem*, 2005] Han, X. and Ghoniem*, N. M. Stress field and interaction forces of dislocations in anisotropic multilayer thin films. *Philosophical Magazine*, 85(11):1205–1225, 2005.

- [Noronha and Ghoniem, 2005] Noronha, S. and Ghoniem, N. Brittle-ductile transition and scatter in fracture toughness of ferritic steels. In *Proceedings of the International Conference on Statistical Mechanics of Plasticity and Related Instabilities*. 2005.
- [Sharafat et al., 2005a] Sharafat, S., Ghoniem, N., Williams, B., and Babcock, J. Cellular foams: a potential innovative solid breeder material for fusion applications. *Fusion science and technology*, 47(4):886–890, 2005a.
- [Sharafat et al., 2005b] Sharafat, S., Ghoniem, N. M., Anderson, M., Williams, B., Blanchard, J., Snead, L., Team, H., et al. Micro-engineered first wall tungsten armor for high average power laser fusion energy systems. *Journal of nuclear materials*, 347(3):217–243, 2005b.
- [Wen et al., 2005a] Wen, M., Ghoniem*, N. M., and Singh, B. N. Dislocation decoration and raft formation in irradiated materials. *Philosophical Magazine*, 85(22):2561–2580, 2005a.
- [Wen et al., 2005b] Wen, M., Wang, Z., Ghoniem, N., and Singh, B. The effects of irradiation on the deformation of cu: A comparison between dislocation dynamics modeling and experiments. In *12th International Conference on Fusion Reactor Materials (ICFRM-12)*. 2005b.
- [Wong et al., 2005] Wong, C., Abdou, M., Blanchard, J., Calderoni, P., Carosella, D., Dagher, M., Ei-Awady, J., Fogarty, P., Ghoniem, N., Kurtz, R., et al. Design description document for the us dual coolant pb-17li (dc11) test blanket module. In *TBWG Meeting, Nov*, volume 15. 2005.
- [Xiao and Ghoniem, 2005] Xiao, W. and Ghoniem, N. Study of dislocation ni-cu interface interaction with peierls-nabarro model. In *APS March Meeting Abstracts*, pages B24–005. 2005.
- [Andersen et al., 2006] Andersen, M., Sharafat, S., and Ghoniem, N. Thermo-mechanical analysis of a micro-engineered tungsten-foam armored ife fw. *Fusion engineering and design*, 81(8-14):1639–1645, 2006.
- [El-Awady et al., 2006] El-Awady, J. A., Takahashi, A., and Ghoniem, N. M. Three-dimensional boundary element-dislocation dynamics modeling of plastic flow in small volumes. In *2006 MRS Fall Meeting*, pages 150–179. 2006.

- [Ghoniem and Huang, 2006] Ghoniem, N. M. and Huang, J. The elastic field of general-shape 3-d cracks. *Philosophical Magazine*, 86(27):4195–4212, 2006.
- [Hu, 2006] Hu, Q. *Multiscale modelling of self-organized mono-layer surface atomic clusters*. Ph.D. thesis, University of California, Los Angeles, 2006.
- [Hu and Ghoniem, 2006] Hu, Q. and Ghoniem, N. M. The early stages of quantum dot self-assembly: A kinetic monte carlo simulation. *Journal of Computational and Theoretical Nanoscience*, 3(5):696–701, 2006.
- [Jaafar et al., 2006] Jaafar, A. E.-A., Takahashi, A., and Nasr, M. G. Three-dimensional boundary element–dislocation dynamics modeling of plastic flow in small volumes. *MRS Online Proceedings Library*, 978:1–30, 2006.
- [Kobayashi et al., 2006] Kobayashi, A., Sharafat, S., and Ghoniem, N. M. Formation of tungsten coatings by gas tunnel type plasma spraying. *Surface and Coatings Technology*, 200(14-15):4630–4635, 2006.
- [Kobayashia et al., 2006] Kobayashia, A., Sharafat, S., and Ghoniem, N. M. Formation of tungsten coatings by gas tunnel type plasma spraying [j]. *Surf Coat Tech*, 200:4630–4635, 2006.
- [Noronha and N, 2006] Noronha, J. and N, M. G. Brittle-ductile transition in heterogeneous metallic materials. *MRS Online Proceedings Library*, 978:1–17, 2006.
- [Noronha and Ghoniem, 2006a] Noronha, S. and Ghoniem, N. Dislocation simulation of brittle-ductile transition in ferritic steels. *Metallurgical and Materials Transactions A*, 37:539–544, 2006a.
- [Noronha and Ghoniem, 2006b] Noronha, S. and Ghoniem, N. Symposium–computational aspects of mechanical properties of materials–dislocation simulation of brittle-ductile transition in ferritic steels. *Metallurgical and Materials Transactions-Series A*, 37(3):539–544, 2006b.
- [Sharafat et al., 2006] Sharafat, S., Ghoniem, N., Sawan, M., Ying, A., and Williams, B. Breeder foam: an innovative low porosity solid breeder material. *Fusion engineering and design*, 81(1-7):455–460, 2006.

- [Wang et al., 2006] Wang, Z., Ghoniem, N., Swaminarayan, S., and LeSar, R. A parallel algorithm for 3d dislocation dynamics. *Journal of computational physics*, 219(2):608–621, 2006.
- [Wen et al., 2006] Wen, M., Wang, Z., Ghoniem, N., and Singh, B. Systematic comparison between experiments and dislocation dynamics modeling of the effects of irradiation on the deformation of cu. In *23rd Symposium on Effects of Radiation on Materials*. 2006.
- [Zhang et al., 2006] Zhang, X., Mehraeen, S., Chen, J.-S., and Ghoniem, N. M. Multiscale total lagrangian formulation for modeling dislocation-induced plastic deformation in polycrystalline materials. *International Journal for Multiscale Computational Engineering*, 4(1), 2006.
- [Andersen and Ghoniem, 2007] Andersen, M. and Ghoniem, N. M. Surface roughening mechanisms for tungsten exposed to laser, ion, and x-ray pulses. *Fusion science and technology*, 52(3):579–583, 2007.
- [Aoyama et al., 2007a] Aoyama, A., Morely, N., Sharafat, S., Ghoniem, N., Katoh, Y., and Williams, B. Status of the flow channel insert development for the us-iter dccl tbm. 2007a.
- [Aoyama et al., 2007b] Aoyama, A., Sharafat, S., Morely, N., Ghoniem, N., and Williams, B. Thermomechanical analysis and design of flow channel inserts for the us-iter dual coolant tbm. 2007b.
- [Banerjee et al., 2007a] Banerjee, S., Ghoniem, N., Lu, G., and Kioussis, N. Non-singular descriptions of dislocation cores: a hybrid ab initio continuum approach. *Philosophical Magazine*, 87(27):4131–4150, 2007a.
- [Banerjee et al., 2007b] Banerjee, S., Shehadeh, M., Lu, G., Kioussis, N., and Ghoniem, N. A multiscale approach for the determination of nonsingular elastic fields of dislocations in bulk and nano-layered materials. In *ASME International Mechanical Engineering Congress and Exposition*, volume 43041, pages 1057–1065. 2007b.
- [El-Awady et al., 2007a] El-Awady, J., Gupta, V., Kim, B., Ghoniem, N., and Sharafat, S. Toughness measurements of tungsten coated ferritic steels using laser induced stress pulses. 2007a.
- [El-Awady et al., 2007b] El-Awady, J. A., Ghoniem, N. M., and Mughrabi, H. Dislocation modelling of localized plasticity in persistent slip bands.

In *Proceedings of the 136th TMS annual meeting and exhibition*, pages 23–35. The Minerals, Metals and Materials Society, 2007b.

- [Ghoniem, 2007] Ghoniem, N. Multiscale physics challenges for plasma-facing materials. *Bulletin of the American Physical Society*, 52, 2007.
- [Ghoniem et al., 2007] Ghoniem, N., Sharafat, S., Wirth, B., Odette, G., Kurtz, R., Stoller, R., Zinkle, S., and Osetskiy, Y. Recent advances in multi-scale modeling of deformation and fracture. 2007.
- [Hu et al., 2007a] Hu, Q., Ghoniem, N. M., and Walgraef, D. Influence of substrate-mediated interactions on the self-organization of adatom clusters. *Physical Review B—Condensed Matter and Materials Physics*, 75(7):075405, 2007a.
- [Hu et al., 2007b] Hu, Q., Ghoniem, N. M., and Walgraef, D. Surface physics, nanoscale physics, low-dimensional systems-influence of substrate-mediated interactions on the self-organization of adatom clusters. *Physical Review-Section B-Condensed Matter*, 75(7):75405–75405, 2007b.
- [Hu et al., 2007c] Hu, Q., Sharafat, S., and Ghoniem, N. M. Modeling space-time dependent helium bubble evolution in tungsten armor under ife conditions. *Fusion science and technology*, 52(3):574–578, 2007c.
- [Kim et al., 2007a] Kim, H., El-Awady, J., Gupta, V., Ghoniem, N., and Sharafat, S. Interface strength measurement of hot isostatic pressed tungsten coatings on f82h substrates. 2007a.
- [Kim et al., 2007b] Kim, H., El-Awady, J., Quan, J., Sharafat, S., Gupta, V., and Ghoniem, N. Failure strength measurements of vps tungsten coatings for hapl first wall armor. *Fusion science and technology*, 52(4):875–879, 2007b.
- [Noronha and Ghoniem, 2007] Noronha, S. and Ghoniem, N. Brittle–ductile transition in f82h and effects of irradiation. *Journal of nuclear materials*, 367:610–615, 2007.
- [Sharafat et al., 2007a] Sharafat, S., Aoyama, A., Narula, M., El-Awady, J., Ghoniem, N., Williams, B., and Youchison, D. Development status of the helium-cooled porous tungsten heat exchanger concept. In *2007 IEEE 22nd Symposium on Fusion Engineering*, pages 1–4. IEEE, 2007a.

- [Sharafat et al., 2007b] Sharafat, S., El-Awady, J., Liu, S., Diegele, E., and Ghoniem, N. Proposed damage evolution model for large-scale finite element modeling of the dual coolant us-iter tbm. *Journal of nuclear materials*, 367:1337–1343, 2007b.
- [Sharafat et al., 2007c] Sharafat, S., Ghoniem, N., El-Awady, J., Youchison, D., and Williams, B. Cfd-based thermo-hydraulic modeling of low pressure drop tungsten-foam heat exchanger. 2007c.
- [Sharafat et al., 2007d] Sharafat, S., Mills, A., Youchison, D., Nygren, R., Williams, B., and Ghoniem, N. Ultra low pressure-drop helium-cooled porous-tungsten pfc. *Fusion Science and Technology*, 52(3):559–565, 2007d.
- [Shehadeh et al., 2007a] Shehadeh, M., Lu, G., Banerjee, S., Kioussis, N., and Ghoniem, N. Dislocation transmission across the cu/ni interface: a hybrid atomistic–continuum study. *Philosophical Magazine*, 87(10):1513–1529, 2007a.
- [Shehadeh et al., 2007b] Shehadeh, M. A., Lu, G., Chen, Z., Kioussis, N., and Ghoniem, N. Multiplane-induced widening of stacking faults in fcc metals. *Applied Physics Letters*, 91(17), 2007b.
- [Wen et al., 2007] Wen, M., Takahashi, A., and Ghoniem, N. M. The motion of dislocations in irradiated materials. In *Joint International Topical Meeting on Mathematics and Computations and Supercomputing in Nuclear Applications, M and C+ SNA 2007*. 2007.
- [Abe et al., 2008a] Abe, K., Kohyama, A., Tanaka, S., Namba, C., Terai, T., Kunugi, T., Muroga, T., Hasegawa, A., Sagara, A., Berk, S., et al. Development of advanced blanket performance under irradiation and system integration through jupiter-ii project. *Fusion Engineering and Design*, 83(7-9):842–849, 2008a.
- [Abe et al., 2008b] Abe, K., Kohyama, A., Tanaka, S., Namba, C., Terai, T., Kunugi, T., Muroga, T., Hasegawa, A., Sagara, A., Berk, S., et al. journal homepage: www.elsevier.com/locate/fusengdes. *Fusion Engineering and Design*, 83:1348–1354, 2008b.
- [Andersen et al., 2008] Andersen, M., Ghoniem, N., and Takahashi, A. Saturation of surface roughening instabilities by plastic deformation. *Applied Physics Letters*, 92(8), 2008.

- [Chen et al., 2008a] Chen, Z., Kioussis, N., Ghoniem, N., and Hasebe, T. Lubricant effect of copper nanoclusters on the dislocation core in α -Fe. *Physical Review B—Condensed Matter and Materials Physics*, 77(1):014103, 2008a.
- [Chen et al., 2008b] Chen, Z., Lu, G., Kioussis, N., and Ghoniem, N. Effect of the local environment on the mobility of dislocations in refractory bcc metals: Concurrent multiscale approach. *Physical Review B—Condensed Matter and Materials Physics*, 78(13):134102, 2008b.
- [El-Awady et al., 2008] El-Awady, J. A., Biner, S. B., and Ghoniem, N. M. A self-consistent boundary element, parametric dislocation dynamics formulation of plastic flow in finite volumes. *Journal of the Mechanics and Physics of Solids*, 56(5):2019–2035, 2008.
- [Ghoniem and Walgraef, 2008a] Ghoniem, N. and Walgraef, D. Instabilities and self-organization in materials: Volume i: Fundamentals of nanoscience, volume ii: Applications in materials design and nanotechnology. 2008a.
- [Ghoniem et al., 2008] Ghoniem, N. M., Po, G., Crosby, T., Wen, M., and Sharafat, S. Multiscale modeling of deformation and fracture of structural materials in nuclear environments i. 2008.
- [Ghoniem and Walgraef, 2008b] Ghoniem, N. M. and Walgraef, D. Instabilities and self-organization in materials: Applications in materials design and nanotechnology. 2008b.
- [Ghoniem and Walgraef, 2008c] Ghoniem, N. M. and Walgraef, D. D. Bifurcations and instabilities. *Instabilities and Self-Organization in Materials*, pages 256–281, 2008c.
- [Hu and Ghoniem, 2008] Hu, Q. and Ghoniem, N. M. A novel way to fabricate nanowires by directed self-organization of atoms. *Journal of Computational and Theoretical Nanoscience*, 5(7):1413–1419, 2008.
- [Noronha and Ghoniem, 2008] Noronha, S. and Ghoniem, N. Modeling the brittle–ductile transition in ferritic steels. part ii: analysis of scatter in fracture toughness. *International Journal of Mechanics and Materials in Design*, 4:13–20, 2008.
- [Takahashi and Ghoniem, 2008a] Takahashi, A. and Ghoniem, N. M. A computational method for dislocation–precipitate interaction. *Journal of the Mechanics and Physics of Solids*, 56(4):1534–1553, 2008a.

- [Takahashi and Ghoniem, 2008b] Takahashi, A. and Ghoniem, N. M. A new computational method for studies of 3-d dislocation-precipitate interactions in reactor steels. In *Nuclear Science Structural Materials for Innovative Nuclear Systems (SMINS) Workshop Proceedings-Karlsruhe, Germany 4-6 June 2007: Workshop Proceedings-Karlsruhe, Germany 4-6 June 2007*, page 241. OECD Publishing, 2008b.
- [Takahashi et al., 2008] Takahashi, A., Kawanabe, M., Hayashi, S., and Ghoniem, N. M. Dislocation dynamics modeling of dislocation cores in the interaction with precipitates. In *4th International Conference on Multiscale Materials Modeling, MMM 2008*, pages 698–703. Department of Scientific Computing, Florida State University, 2008.
- [Aoyama et al., 2009] Aoyama, A., Blanchard, J., Sethian, J., Ghoniem, N., and Sharafat, S. Thermo-mechanical analysis of the hibachi foil for the electra laser system. *Fusion science and technology*, 56(1):435–440, 2009.
- [Blanchard et al., 2009] Blanchard, J. P., Hu, Q., and Ghoniem, N. A unified model for ion deposition and thermomechanical response in dry wall laser ife chambers. *Fusion science and technology*, 56(1):341–345, 2009.
- [Brown and Ghoniem, 2009] Brown, J. and Ghoniem, N. Structure and motion of junctions between coherent and incoherent twin boundaries in copper. *Acta materialia*, 57(15):4454–4462, 2009.
- [Chen et al., 2009a] Chen, Z., Ghoniem, N. M., Kioussis, N. G., and Lu, G. Chemistry effects on dislocation mobility in refractory bcc metals. APS Meeting Abstracts, 2009a.
- [Chen et al., 2009b] Chen, Z., Kioussis, N., and Ghoniem, N. Influence of nanoscale cu precipitates in α -fe on dislocation core structure and strengthening. *Physical Review B—Condensed Matter and Materials Physics*, 80(18):184104, 2009b.
- [El-Awady et al., 2009a] El-Awady, J. A., Wen, M., and Ghoniem, N. M. The role of the weakest-link mechanism in controlling the plasticity of micropillars. *Journal of the Mechanics and Physics of Solids*, 57(1):32–50, 2009a.

- [El-Awady et al., 2009b] El-Awady, J. A., Woodward, C., Dimiduk, D. M., and Ghoniem, N. M. Effects of focused ion beam induced damage on the plasticity of micropillars. *Physical Review B—Condensed Matter and Materials Physics*, 80(10):104104, 2009b.
- [Ghoniem and Zinkle, 2009a] Ghoniem, N. and Zinkle, S. Accelerated development of advanced steels for nuclear applications. Technical report, 2009a.
- [Ghoniem, 2009] Ghoniem, N. M. Development of robust life laser mirrors and multi-scale modeling of pulsed radiation effects. final report. Technical report, University of California, 2009.
- [Ghoniem and Kioussis, 2009] Ghoniem, N. M. and Kioussis, N. Multiscale modeling of the deformation of advanced ferritic steels for generation iv nuclear energy. Technical report, The Regents of the University of California, Los Angeles, 2009.
- [Ghoniem and Zinkle, 2009b] Ghoniem, N. M. and Zinkle, S. Utilization of multiscale experimental and computational techniques for the design of radiation-resistant steels. Technical report, 2009b.
- [Hu et al., 2009] Hu, Q., Li, L., and Ghoniem, N. Stick-slip dynamics of coherent twin boundaries in copper. *Acta materialia*, 57(16):4866–4873, 2009.
- [Kim et al., 2009] Kim, H., El-Awady, J., Gupta, V., Ghoniem, N., and Sharafat, S. Interface strength measurement of tungsten coatings on f82h substrates. *Journal of nuclear materials*, 386:863–865, 2009.
- [Kioussis et al., 2009] Kioussis, N., Chen, Z., Lu, G., and Ghoniem, N. Chemistry effects on dislocation mobility in refractory bcc metals. In *APS March Meeting Abstracts*, pages A13–007. 2009.
- [Li and Ghoniem, 2009] Li, L. and Ghoniem, N. M. Twin-size effects on the deformation of nanotwinned copper. *Physical Review B—Condensed Matter and Materials Physics*, 79(7):075444, 2009.
- [Sharafat et al., 2009a] Sharafat, S., Aoyama, A., Ghoniem, N., Blanchard, J., and Malang, S. Thermo-mechanical analysis of a w-ta-ods divertor transition joint. In *2009 23rd IEEE/NPSS Symposium on Fusion Engineering*, pages 1–4. IEEE, 2009a.

- [Sharafat et al., 2009b] Sharafat, S., Aoyama, A., Morley, N., Smolentsev, S., Katoh, Y., Williams, B., and Ghoniem, N. Development status of a sic-foam based flow channel insert for a us-iter dccl tbm. *Fusion science and technology*, 56(2):883–891, 2009b.
- [Sharafat et al., 2009c] Sharafat, S., Takahashi, A., Hu, Q., and Ghoniem, N. A description of bubble growth and gas release of helium implanted tungsten. *Journal of Nuclear Materials*, 386:900–903, 2009c.
- [Takahashi and Ghoniem, 2009] Takahashi, A. and Ghoniem, N. M. Structure of self-interstitial atom clusters in iron and copper. *Physical Review B—Condensed Matter and Materials Physics*, 80(17):174104, 2009.
- [Takahashi et al., 2009] Takahashi, A., Nagasawa, K., Sharafat, S., and Ghoniem, N. Kinetic monte carlo simulation of helium-bubble evolution in ods steels. *Journal of ASTM International*, 7(2):JA101971, 2009.
- [Wen et al., 2009] Wen, M., Takahashi, A., and Ghoniem, N. M. Kinetics of self-interstitial cluster aggregation near dislocations and their influence on hardening. *Journal of nuclear materials*, 392(3):386–395, 2009.
- [Brown and Ghoniem, 2010] Brown, J. and Ghoniem, N. Reversible–irreversible plasticity transition in twinned copper nanopillars. *Acta materialia*, 58(3):886–894, 2010.
- [Chen et al., 2010a] Chen, Z., Kioussis, N., Ghoniem, N., and Seif, D. Strain-field effects on the formation and migration energies of self interstitials in α -fe from first principles. *Physical Review B—Condensed Matter and Materials Physics*, 81(9):094102, 2010a.
- [Chen et al., 2010b] Chen, Z., Kioussis, N., Ghoniem, N., Tu, K.-N., and Yang, J.-M. Inhibition of surface mobility of cu adatoms on the cu (111) surface via sn alloying. In *APS March Meeting Abstracts*, volume 2010, pages J32–012. 2010b.
- [Chen et al., 2010c] Chen, Z., Kioussis, N., Tu, K.-N., Ghoniem, N., and Yang, J.-M. Inhibiting adatom diffusion through surface alloying. *Physical review letters*, 105(1):015703, 2010c.
- [Chen et al., 2010d] Chen, Z., Lu, G., Kioussis, N., and Ghoniem, N. M. The crucial role of chemistry on mobile properties of dislocation. *Philosophical Magazine*, 90(27-28):3757–3765, 2010d.

- [Ghoniem et al., 2010a] Ghoniem, N., Po, G., and Nooronha, S. Deformation mechanisms in ferritic/martensitic steels. *Transactions of the American Nuclear Society*, 102:713–714, 2010a.
- [Ghoniem et al., 2010b] Ghoniem, N., Takahashi, A., Chen, Z., Kioussis, N., and Lu, G. Multiscale models of dislocation core structures in iron and copper. 2010b.
- [Hasebe et al., 2010] Hasebe, T., Ghoniem, N. M., and ENGINEERING, K. U. J. D. O. M. " multiscale computational design optimization of copper-strengthened steel for high cycle fatigue. Technical report, 2010.
- [Kioussis and Ghoniem, 2010] Kioussis, N. G. and Ghoniem, N. M. Modeling of dislocation interaction with solutes, nano-precipitates and interfaces: A multiscale challenge. *Journal of Computational and Theoretical Nanoscience*, 7(8):1317–1346, 2010.
- [Po and Ghoniem, 2010] Po, G. and Ghoniem, N. Coupled oscillations of double-walled carbon nanotubes. *Journal of applied physics*, 107(9), 2010.
- [Seif and Ghoniem, 2010] Seif, D. and Ghoniem, N. Multipolar elastic representation of defect fields in metals. In *Proc. Multiscale Modeling Conf., Freiburg, Germany*. 2010.
- [Sethian et al., 2010] Sethian, J., Colombant, D., Giuliani, J., Lehmberg, R., Myers, M., Obenschain, S., Schmitt, A., Weaver, J., Wolford, M., Hegeler, F., et al. The science and technologies for fusion energy with lasers and direct-drive targets. *IEEE Transactions on Plasma Science*, 38(4):690–703, 2010.
- [Sharafat et al., 2010a] Sharafat, S., Aoyama, A., Ghoniem, N., Williams, B., and Katoh, Y. Heat testing of a prototypical sic-foam-based flow channel insert. *IEEE transactions on plasma science*, 38(10):2993–2998, 2010a.
- [Sharafat et al., 2010b] Sharafat, S., El-Azab, A., Kubin, L., Zinkle, S., and Huang, H. Collective behavior of complex dislocation structures. 2010b.
- [Takahashi et al., 2010] Takahashi, A., Kawanabe, M., and Ghoniem, N. M. γ -precipitate strengthening in nickel-based superalloys. *Philosophical Magazine*, 90(27-28):3767–3786, 2010.

- [Aoyama et al., 2011] Aoyama, A. T., Sharafat, S., Ghoniem, N., Dagher, M., and Wong, C. Thermomechanical analysis of the revised ITER DCLL test blanket module. *Fusion Science and Technology*, 60(1):170–174, 2011.
- [Crosby and Ghoniem, 2011] Crosby, T. and Ghoniem, N. M. Thermo-mechanical damage of tungsten surfaces exposed to rapid transient plasma heat loads. *Interaction and multiscale mechanics*, 4(3):207–217, 2011.
- [Kudryavtsev, 2011] Kudryavtsev, I. Instabilities and self-organization in materials, by Nasr M. Ghoniem and Daniel D. Walgraef. 2011.
- [PO et al., 2011] PO, G., RAMIREZ, B., CROSBY, T., EREL, C., NGUYEN, J., HU, Q., SINGH, T., and GHONIEM, N. Network interfacial dynamics of microstructure evolution. *Advances in Heterogeneous Material Mechanics 2011*, 2011.
- [Sawan et al., 2011] Sawan, M., Ghoniem, N. M., Snead, L., and Katoh, Y. Damage production and accumulation in SiC structures in inertial and magnetic fusion systems. *Journal of nuclear materials*, 417(1-3):445–450, 2011.
- [Seif and Ghoniem, 2011] Seif, D. and Ghoniem, N. M. Dislocation bias calculations using a combined finite-element rate-theory approach. *Transactions of the American Nuclear Society*, 104:59, 2011.
- [Sharafat et al., 2011a] Sharafat, S., Aoyama, A. T., and Ghoniem, N. Assessment of the DCLL TBM thermostructural response based on ITER design criteria. *Fusion Science and Technology*, 60(1):264–271, 2011a.
- [Sharafat et al., 2011b] Sharafat, S., Aoyama, A. T., Ghoniem, N., and Williams, B. Design and fabrication of a rectangular He-cooled refractory foam HX-channel for divertor applications. *Fusion Science and Technology*, 60(1):208–212, 2011b.
- [Takahashi et al., 2011] Takahashi, A., Chen, Z., Ghoniem, N., and Kioussis, N. Atomistic-continuum modeling of dislocation interaction with Y_2O_3 particles in iron. *Journal of nuclear materials*, 417(1-3):1098–1101, 2011.
- [Zinkle and Ghoniem, 2011] Zinkle, S. J. and Ghoniem, N. M. Prospects for accelerated development of high performance structural materials. *Journal of Nuclear Materials*, 417(1-3):2–8, 2011.

- [Crosby and Ghoniem, 2012] Crosby, T. and Ghoniem, N. Phase-field modeling of thermomechanical damage in tungsten under severe plasma transients. *Computational Mechanics*, 50:159–168, 2012.
- [Ghoniem, 2012] Ghoniem, N. Dislocation dynamics. 2012.
- [Mohamed et al., 2012] Mohamed, M., Larson, B., Po, G., Ghoniem, N., and El-Azab, A. Dislocation dynamics simulation of indentation of fcc crystals. In *AIP conference proceedings*. 2012.
- [Ramírez et al., 2012] Ramírez, B. R., Ghoniem, N., and Po, G. Ab initio continuum model for the influence of local stress on cross-slip of screw dislocations in fcc metals. *Physical Review B—Condensed Matter and Materials Physics*, 86(9):094115, 2012.
- [Seif and Ghoniem, 2012] Seif, D. and Ghoniem, N. M. Effect of anisotropy, slip orientation and one-dimensional migration on dislocation bias calculations in metals. *Transactions of the American Nuclear Society*, 106:109–111, 2012.
- [Walgraef and Ghoniem, 2012] Walgraef, D. and Ghoniem, N. M. Patterns, defects and materials instabilities. 2012.
- [Chen and Ghoniem, 2013a] Chen, Z. and Ghoniem, N. Biaxial strain effects on adatom surface diffusion on tungsten from first principles. *Physical Review B—Condensed Matter and Materials Physics*, 88(3):035415, 2013a.
- [Chen and Ghoniem, 2013b] Chen, Z. and Ghoniem, N. Effects of biaxial strain on diffusivity of low index tungsten surfaces. In *APS March Meeting Abstracts*, volume 2013, pages M40–010. 2013b.
- [Colorado et al., 2013] Colorado, H., Navarro, A., Prikhodko, S., Yang, J., Ghoniem, N., and Gupta, V. Ultrahigh strain-rate bending of copper nanopillars with laser-generated shock waves. *Journal of Applied Physics*, 114(23), 2013.
- [Crosby and Ghoniem, 2013] Crosby, T. and Ghoniem, N. M. Multiphysics model of thermomechanical and helium-induced damage of tungsten during plasma heat transients. *Journal of Nuclear Materials*, 442(1-3):S261–S266, 2013.

- [Crum et al., 2013] Crum, R., Ghoniem, N. M., Gupta, V., Kodambaka, S., Po, G., Prikhodko, S., Seif, D., and Youssef, G. The influence of laser-induced nanosecond rise-time stress waves on the microstructure and surface chemical activity of single crystal cu nanopillars. 2013.
- [Ghoniem et al., 2013] Ghoniem, N. M., Po, G., and Sharafat, S. Deformation mechanisms in ferritic/martensitic steels and the impact on mechanical design. *Journal of nuclear materials*, 441(1-3):704–712, 2013.
- [Harb et al., 2013] Harb, R., Taciroglu, E., and Ghoniem, N. Partitioning of elastic energy in open-cell foams under finite deformations. *Acta materialia*, 61(5):1454–1468, 2013.
- [Po and Ghoniem, 2013] Po, G. and Ghoniem, N. Continuum modeling of plastic flow localization in irradiated fcc metals. *Journal of Nuclear Materials*, 442(1-3):S607–S611, 2013.
- [Seif and Ghoniem, 2013a] Seif, D. and Ghoniem, N. Dislocation bias calculations in metals using a combined finite-element rate-theory approach. In *Effects of Radiation on Nuclear Materials: 25th Volume*, pages 338–349. ASTM International, 2013a.
- [Seif and Ghoniem, 2013b] Seif, D. and Ghoniem, N. M. Effect of anisotropy, sia orientation, and one-dimensional migration mechanisms on dislocation bias calculations in metals. *Journal of Nuclear Materials*, 442(1-3):S633–S638, 2013b.
- [Sharafat et al., 2013] Sharafat, S., Aoyama, A., Williams, B., and Ghoniem, N. Development of micro-engineered textured tungsten surfaces for high heat flux applications. *Journal of Nuclear Materials*, 442(1-3):S302–S308, 2013.
- [Takahashi and Ghoniem, 2013] Takahashi, A. and Ghoniem, N. M. Fracture mechanics of propagating 3-d fatigue cracks with parametric dislocations. *Philosophical Magazine*, 93(20):2662–2679, 2013.
- [Youssef et al., 2013] Youssef, G., Crum, R., Prikhodko, S., Seif, D., Po, G., Ghoniem, N., Kodambaka, S., and Gupta, V. The influence of laser-induced nanosecond rise-time stress waves on the microstructure and surface chemical activity of single crystal cu nanopillars. *Journal of applied physics*, 113(8), 2013.

- [Burbery et al., 2014] Burbery, N. J., Das, R., Po, G., and Ghoniem, N. Understanding the threshold conditions for dislocation transmission from tilt grain boundaries in fcc metals under uniaxial loading. *Applied Mechanics and Materials*, 553:28–34, 2014.
- [Crosby et al., 2014] Crosby, T., Po, G., and Ghoniem, N. M. Modeling plastic deformation of post-irradiated copper micro-pillars. *Journal of nuclear materials*, 455(1-3):126–129, 2014.
- [Po and Ghoniem, 2014] Po, G. and Ghoniem, N. A variational formulation of constrained dislocation dynamics coupled with heat and vacancy diffusion. *Journal of the Mechanics and Physics of Solids*, 66:103–116, 2014.
- [Po et al., 2014a] Po, G., Lazar, M., Seif, D., and Ghoniem, N. Singularity-free dislocation dynamics with strain gradient elasticity. *Journal of the Mechanics and Physics of Solids*, 68:161–178, 2014a.
- [Po et al., 2014b] Po, G., Mohamed, M. S., Crosby, T., Erel, C., El-Azab, A., and Ghoniem, N. Recent progress in discrete dislocation dynamics and its applications to micro plasticity. *Jom*, 66:2108–2120, 2014b.
- [Rivera et al., 2014] Rivera, D., Crosby, T., Sheng, A., and Ghoniem, N. M. Characterization of thermomechanical damage on tungsten surfaces during long-duration plasma transients. *Journal of Nuclear Materials*, 455(1-3):500–506, 2014.
- [Seif and Ghoniem, 2014] Seif, D. and Ghoniem, N. M. A stochastic differential equations approach for the description of helium bubble size distributions in irradiated metals. *Journal of Nuclear Materials*, 455(1-3):516–521, 2014.
- [Seif et al., 2014] Seif, D., Po, G., Crum, R., Gupta, V., and Ghoniem, N. M. Shock-induced plasticity and the hugoniot elastic limit in copper nano films and rods. *Journal of Applied Physics*, 115(5), 2014.
- [Tillack et al., 2014] Tillack, M., Ghoniem, N., Blanchard, J., and Nygren, R. The materials-design interface for fusion power core components. 2014.
- [Burbery et al., 2015] Burbery, N., Das, R., Ferguson, W., Po, G., and Ghoniem, N. Establishing effective criteria to link atomic and macro-scale simulations of dislocation nucleation in fcc metals. In *Proceedings*

of the 6th International Conference on Computational Methods (ICCM 2015), pages 62–73. Scientech, 2015.

[Chui et al., 2015] Chui, J. Y., de Anna, P., and Juanes, R. Interface evolution during radial miscible viscous fingering. *Physical Review E*, 92(4):041003, 2015.

[Crosby et al., 2015] Crosby, T., Po, G., Erel, C., and Ghoniem, N. The origin of strain avalanches in sub-micron plasticity of fcc metals. *Acta materialia*, 89:123–132, 2015.

[Ghoniem et al., 2015] Ghoniem, N., Sehirlioglu, A., Neff, A. L., Allain, J.-P., Williams, B., and Sharghi-Moshtaghin, R. Sputtering of molybdenum and tungsten nano rods and nodules irradiated with 150 ev argon ions. *Applied Surface Science*, 331:299–308, 2015.

[Ghoniem, 2015] Ghoniem, N. M. Tpl: A unified discrete defect dynamics framework for plasticity and fracture. In *The 6th International Conference on Computational Methods (ICCM2015)*. 2015.

[Kessel et al., 2015] Kessel, C., Blanchard, J. P., Davis, A., El-Guebaly, L., Ghoniem, N., Humrickhouse, P., Malang, S., Merrill, B., Morley, N., Neilson, G., et al. The fusion nuclear science facility, the critical step in the pathway to fusion energy. *Fusion science and technology*, 68(2):225–236, 2015.

[Burbery et al., 2016] Burbery, N., Das, R., Ferguson, W. G., Po, G., and Ghoniem, N. Atomistic activation energy criteria for multi-scale modeling of dislocation nucleation in fcc metals. *International Journal of Computational Methods*, 13(4):1641006, 2016.

[Cui et al., 2016a] Cui, Y., Po, G., and Ghoniem, N. Controlling strain bursts and avalanches at the nano-to micrometer scale. *Physical review letters*, 117(15):155502, 2016a.

[Cui et al., 2016b] Cui, Y., Po, G., and Ghoniem, N. Temperature insensitivity of the flow stress in body-centered cubic micropillar crystals. *Acta Materialia*, 108:128–137, 2016b.

[GUPTA et al., 2016] GUPTA, V., GHONIEM, N., CRUM, R., PO, G., SEIF, D., PRIKHODKO, V., COLORADO, H., RAMIREZ, B., and GÁMEZ, C. Microstructure evolution in metal nanostructures under extreme conditions of temperature and strain rate. *Proceedings of the Indian National Science Academy*, 82(8):201–208, 2016.

- [Po et al., 2016] Po, G., Cui, Y., Rivera, D., Cereceda, D., Swinburne, T. D., Marian, J., and Ghoniem, N. A phenomenological dislocation mobility law for bcc metals. *Acta Materialia*, 119:123–135, 2016.
- [Sharafat et al., 2016] Sharafat, S., Williams, B., Ghoniem, N., Ghoniem, A., Shimada, M., and Ying, A. Development of a new cellular solid breeder for enhanced tritium production. *Fusion Engineering and Design*, 109:119–127, 2016.
- [Burbery et al., 2017] Burbery, N., Po, G., Das, R., Ghoniem, N., and Ferguson, W. Dislocation dynamics in polycrystals with atomistic-informed mechanisms of dislocation-grain boundary interactions. *Journal of Micromechanics and Molecular Physics*, 2(01):1750003, 2017.
- [Cui et al., 2017a] Cui, Y., Po, G., and Ghoniem, N. Does irradiation enhance or inhibit strain bursts at the submicron scale? *Acta Materialia*, 132:285–297, 2017a.
- [Cui et al., 2017b] Cui, Y., Po, G., and Ghoniem, N. Influence of loading control on strain bursts and dislocation avalanches at the nanometer and micrometer scale. *Physical Review B*, 95:064103–1, 2017b.
- [Erel et al., 2017a] Erel, C., Po, G., Crosby, T., and Ghoniem, N. Generation and interaction mechanisms of prismatic dislocation loops in fcc metals. *Computational Materials Science*, 140:32–46, 2017a.
- [Erel et al., 2017b] Erel, C., Po, G., and Ghoniem, N. Dependence of hardening and saturation stress in persistent slip bands on strain amplitude during cyclic fatigue loading. *Philosophical Magazine*, 97(32):2947–2970, 2017b.
- [Ghoniem, 2017] Ghoniem, N. M. Multiscale modeling of deformation, fracture and failure of fusion materials and structures final report. Technical report, Univ. of California, Los Angeles, CA (United States), 2017.
- [Li et al., 2017] Li, G. Z., Matlock, T. S., Goebel, D. M., Dodson, C. A., Matthes, C. S., Ghoniem, N. M., and Wirz, R. E. In situ plasma sputtering and angular distribution measurements for structured molybdenum surfaces. *Plasma Sources Science and Technology*, 26(6):065002, 2017.

- [Matthes et al., 2017a] Matthes, C. S., Ghoniem, N. M., Li, G. Z., Matlock, T. S., Goebel, D. M., Dodson, C. A., and Wirz, R. E. Fluence-dependent sputtering yield of micro-architected materials. *Applied Surface Science*, 407:223–235, 2017a.
- [Matthes et al., 2017b] Matthes, C. S., Ghoniem, N. M., and Walgraef, D. Stability and symmetry of ion-induced surface patterning. *Materials Theory*, 1:1–23, 2017b.
- [Papanikolaou et al., 2017] Papanikolaou, S., Cui, Y., and Ghoniem, N. Avalanches and plastic flow in crystal plasticity: an overview. *Modelling and Simulation in Materials Science and Engineering*, 26(1):013001, 2017.
- [Rivera et al., 2017a] Rivera, D., Huang, Y., Po, G., and Ghoniem, N. M. A dislocation-based crystal viscoplasticity model with application to micro-engineered plasma-facing materials. *Journal of Nuclear Materials*, 485:231–242, 2017a.
- [Rivera et al., 2017b] Rivera, D., Wirz, R. E., and Ghoniem, N. Experimental measurements of surface damage and residual stresses in micro-engineered plasma facing materials. *Journal of Nuclear Materials*, 486:111–121, 2017b.
- [Abdelmawla et al., 2018] Abdelmawla, A., Hatem, T. M., and Ghoniem, N. M. Dislocation-based finite element modelling of hydrogen embrittlement in steel alloys. In *TMS 2018 147th Annual Meeting & Exhibition Supplemental Proceedings*, pages 213–223. Springer International Publishing, 2018.
- [Cui and Ghoniem, 2018] Cui, Y. and Ghoniem, N. Spatio-temporal plastic instabilities at the nano/micro scale. *Journal of Micromechanics and Molecular Physics*, 3(03n04):1840006, 2018.
- [Cui et al., 2018a] Cui, Y., Po, G., and Ghoniem, N. Size-tuned plastic flow localization in irradiated materials at the submicron scale. *Physical review letters*, 120(21):215501, 2018a.
- [Cui et al., 2018b] Cui, Y., Po, G., and Ghoniem, N. Suppression of localized plastic flow in irradiated materials. *Scripta Materialia*, 154:34–39, 2018b.

- [Cui et al., 2018c] Cui, Y., Po, G., and Ghoniem, N. M. A coupled dislocation dynamics-continuum barrier field model with application to irradiated materials. *International Journal of Plasticity*, 104:54–67, 2018c.
- [Gao and Ghoniem, 2018] Gao, E. and Ghoniem, N. M. A coupled rate theory-monte carlo model of helium bubble evolution in plasma-facing micro-engineered tungsten. *Journal of Nuclear Materials*, 509:577–590, 2018.
- [Gao et al., 2018] Gao, E., Nadvornick, W., Doerner, R., and Ghoniem, N. M. The influence of low-energy helium plasma on bubble formation in micro-engineered tungsten. *Journal of Nuclear Materials*, 501:319–328, 2018.
- [Ghoniem and Cui, 2018] Ghoniem, N. and Cui, Y. Strain bursts and dislocation avalanches in obstacle-hardened materials. In *APS March Meeting Abstracts*, volume 2018, pages H48–001. 2018.
- [Huang et al., 2018a] Huang, Y., Cismondi, F., Diegele, E., Federici, G., Del Nevo, A., Moro, F., and Ghoniem, N. Thermo-structural design of the european demo water-cooled blanket with a multiscale-multiphysics framework. *Fusion Engineering and Design*, 135:31–41, 2018a.
- [Huang et al., 2018b] Huang, Y., Tillack, M., and Ghoniem, N. Tungsten monoblock concepts for the fusion nuclear science facility (fnsf) first wall and divertor. *Fusion Engineering and Design*, 135:346–355, 2018b.
- [Huang et al., 2018c] Huang, Y., Tillack, M., Ghoniem, N., Blanchard, J., El-Guebaly, L., and Kessel, C. Multiphysics modeling of the fw/blanket of the us fusion nuclear science facility (fnsf). *Fusion Engineering and Design*, 135:279–289, 2018c.
- [Kessel et al., 2018] Kessel, C. E., Blanchard, J. P., Davis, A., El-Guebaly, L., Garrison, L. M., Ghoniem, N. M., Humrickhouse, P. W., Huang, Y., Katoh, Y., Khodak, A., et al. Overview of the fusion nuclear science facility, a credible break-in step on the path to fusion energy. *Fusion Engineering and Design*, 135:236–270, 2018.

- [Po et al., 2018] Po, G., Lazar, M., Admal, N. C., and Ghoniem, N. A non-singular theory of dislocations in anisotropic crystals. *International Journal of Plasticity*, 103:1–22, 2018.
- [Shaefer et al., 2018] Shaefer, R. S., Ghoniem, N. M., and Williams, B. Cellular structures with interconnected microchannels. 2018. US Patent 9,881,699.
- [Stoller et al., 2018] Stoller, R., Clark, D., Ghoniem, N., Katoh, Y., Kurtz, R., Marian, J., Odette, G., Wirth, B., Yamamoto, T., and Zinkle, S. Recent advances in radiation materials science from the us fusion reactor materials program. 2018.
- [Alabdullah and Ghoniem, 2019] Alabdullah, M. and Ghoniem, N. M. Damage mechanics modeling of the non-linear behavior of sic/sic ceramic matrix composite fuel cladding. *Journal of Nuclear Materials*, 524:296–311, 2019.
- [Alvarado et al., 2019] Alvarado, A., Chang, H.-Y., Nadvornick, W., Ghoniem, N., and Marian, J. Monte carlo raytracing method for calculating secondary electron emission from micro-architected surfaces. *Applied Surface Science*, 478:142–149, 2019.
- [Cui et al., 2019] Cui, Y., Po, G., Pellegrini, Y.-P., Lazar, M., and Ghoniem, N. Computational 3-dimensional dislocation elastodynamics. *Journal of the Mechanics and Physics of Solids*, 126:20–51, 2019.
- [Gao et al., 2019] Gao, E., Doerner, R., Williams, B., and Ghoniem, N. M. Low-energy helium plasma effects on textured micro-porous tungsten. *Journal of Nuclear Materials*, 517:86–96, 2019.
- [Po et al., 2019] Po, G., Huang, Y., and Ghoniem, N. A continuum dislocation-based model of wedge microindentation of single crystals. *International Journal of Plasticity*, 114:72–86, 2019.
- [Sheng et al., 2019] Sheng, A., Ghoniem, N., Crosby, T., and Po, G. A mesh-independent method for planar three-dimensional crack growth in finite domains. *International journal for numerical methods in engineering*, 117(1):38–62, 2019.
- [Alabdullah and Ghoniem, 2020] Alabdullah, M. and Ghoniem, N. M. A thermodynamics-based damage model for the non-linear mechanical behavior of sic/sic ceramic matrix composites in irradiation and

- thermal environments. *International Journal of Damage Mechanics*, 29(10):1569–1599, 2020.
- [Chatterjee et al., 2020] Chatterjee, S., Po, G., Zhang, X., Acharya, A., and Ghoniem, N. Plasticity without phenomenology: a first step. *Journal of the Mechanics and Physics of Solids*, 143:104059, 2020.
- [Cui et al., 2020] Cui, Y., Po, G., Srivastava, P., Jiang, K., Gupta, V., and Ghoniem, N. The role of slow screw dislocations in controlling fast strain avalanche dynamics in body-centered cubic metals. *International journal of plasticity*, 124:117–132, 2020.
- [Dickstein et al., 2020] Dickstein, D., Chang, H.-Y., Marian, J., Feldman, M., Hubble, A., Spektor, R., and Ghoniem, N. Secondary electron emission from reticulated cellular copper surfaces. *Journal of Applied Physics*, 128(12), 2020.
- [Ghoniem, 2020] Ghoniem, N. M. Rate theory of radiation damage. *Handbook of Materials Modeling: Applications: Current and Emerging Materials*, pages 2215–2242, 2020.
- [Ghoniem and Cui, 2020] Ghoniem, N. M. and Cui, Y. Dislocation dynamics simulations of defects in irradiated materials. 2020.
- [Gittus et al., 2020] Gittus, J., Ghoniem, N., and Amodeo, R. Dislocation cell diameter during creep. In *Materials Modelling*, pages 91–96. CRC Press, 2020.
- [Huang et al., 2020] Huang, Y., Nadvornick, W., Ghazari, A., and Ghoniem, N. M. Multiphysics-multiscale modeling of plasma-facing structures in extreme heat and radiation environments. *International Journal for Multiscale Computational Engineering*, 18(2), 2020.
- [Li and Ghoniem, 2020] Li, Y. and Ghoniem, N. Cluster dynamics modeling of irradiation growth in single crystal zr. *Journal of Nuclear Materials*, 540:152312, 2020.
- [Li et al., 2020] Li, Y., Po, G., and Ghoniem, N. Coupled cluster-dislocation dynamics of irradiation-induced defects. *Materialia*, 14:100891, 2020.
- [Tikare et al., 2020] Tikare, V., Criscenti, L., Tikare, V., Zeitler, T., Ram, D., Besmann, T. M., Caturla, M., Duffy, D., Ghoniem, N., Seif, D.,

- et al. State-of-the-art report on multi-scale modelling methods. Technical report, Organisation for Economic Co-Operation and Development, 2020.
- [Cui et al., 2021] Cui, Y., Ghoniem, N., and Po, G. Plasticity of irradiated materials at the nano and micro-scales. *Journal of nuclear materials*, 546:152746, 2021.
- [Forte et al., 2021] Forte, R., Chiovaro, P., Di Maio, P. A., and Ghoniem, N. Multiphysics optimization for first wall design enhancement in water-cooled breeding blankets. *Nuclear Materials and Energy*, 29:101058, 2021.
- [Ghazari et al., 2021a] Ghazari, A., Forte, R., Yamamoto, T., Odette, R., and Ghoniem, N. Radiation effects on stress evolution and dimensional stability of large fusion energy structures. *Fusion Engineering and Design*, 172:112756, 2021a.
- [Ghazari et al., 2021b] Ghazari, A., McElfresh, C., Dickstein, D., Marian, J., and Ghoniem, N. Effects of cyclic plasma heating on surface damage of micro-porous tungsten. *Physica Scripta*, 96(12):124033, 2021b.
- [Ghoniem, 2021] Ghoniem, N. Burning plasma science: Long pulse-materials and fusion nuclear science (final project report). Technical report, Univ. of California, Los Angeles, CA (United States), 2021.
- [Kato et al., 2021] Kato, Y., Ghoniem, N. M., Marian, J., Odette, G. R., Snead, L., Allain, J. P., Trelewicz, J., Wirth, B., Wiffen, B., Kurtz, R., et al. Summary report on the refined user requirements for us fusion prototypic neutron source. Technical report, Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (United States), 2021.
- [Li et al., 2021a] Li, Y., Chatterjee, S., Martinez, E., Ghoniem, N., and Po, G. On the cross-slip of screw dislocations in zirconium. *Acta Materialia*, 208:116764, 2021a.
- [Li et al., 2021b] Li, Z., Cui, Y., Yan, W., Zhang, D., Fang, Y., Chen, Y., Yu, Q., Wang, G., Ouyang, H., Fan, C., et al. Enhanced strengthening and hardening via self-stabilized dislocation network in additively manufactured metals. *Materials Today*, 50:79–88, 2021b.
- [Mahler et al., 2021] Mahler, M., Po, G., Cui, Y., Ghoniem, N., and Aktaa, J. Microstructure-specific hardening of ferritic-martensitic steels pre

and post 15 dpa neutron irradiation at 330° c: a dislocation dynamics study. *Nuclear materials and energy*, 26:100814, 2021.

[Nadvornick et al., 2021] Nadvornick, W., Chang, H.-Y., Alvarado, A., Molina, P., Marian, J., and Ghoniem, N. A linked-scale coupled model of mass erosion and redistribution in plasma-exposed micro-foam surfaces. *Journal of Nuclear Materials*, 553:153010, 2021.

[Srivastava et al., 2021] Srivastava, P., Jiang, K., Cui, Y., Olivera, E., Ghoniem, N., and Gupta, V. The influence of nano/micro sample size on the strain-rate sensitivity of plastic flow in tungsten. *International Journal of Plasticity*, 136:102854, 2021.

[Dickstein et al., 2022] Dickstein, D., Donghyun Ko, D., Nadvornick, W., Jain, K., Holdheim, S., Sungtaek Ju, Y., and Ghoniem, N. Optimized permeability of microporous foam for transpiration cooling in hypersonic leading edge. *Journal of Thermophysics and Heat Transfer*, 36(4):907–919, 2022.

[Ghazari et al., 2022] Ghazari, A., McElfresh, C., Dickstein, D., Nadvornick, W., Pintsuk, G., Wessel, E., Wirtz, M., Hughes, D., Williams, B., Marian, J., et al. Intense cyclic heating effects on thermo-fracture and thermal shock of solid tungsten and open-cell tungsten foam. *Journal of Nuclear Materials*, 565:153730, 2022.

[Ji et al., 2022] Ji, C., Cui, Y., Li, Y., and Ghoniem, N. A concurrent irradiation-mechanics multiscale coupling model. *Journal of the Mechanics and Physics of Solids*, 167:105005, 2022.

[Po et al., 2022] Po, G., Huang, Y., Li, Y., Baker, K., Flores, B. R., Black, T., Hollenbeck, J., and Ghoniem, N. A model of thermal creep and annealing in finite domains based on coupled dislocation climb and vacancy diffusion. *Journal of the Mechanics and Physics of Solids*, 169:105066, 2022.

[Abd-Elaziem et al., 2023] Abd-Elaziem, W., Liu, J., Ghoniem, N., and Li, X. Effect of nanoparticles on creep behaviour of metals: a review. *Journal of Materials Research and Technology*, 2023.

[Alabdullah and Ghoniem, 2023] Alabdullah, M. and Ghoniem, N. M. A probabilistic-phase field model for the fracture of brittle materials. *Modelling and Simulation in Materials Science and Engineering*, 32(1):015002, 2023.

- [Alabdullah et al., 2023] Alabdullah, M., Sheng, A., and Ghoniem, N. Discrete crack mechanics of disk compression for measurement of low fracture toughness. *International Journal of Fracture*, 241(2):171–187, 2023.
- [Dickstein et al., 2023] Dickstein, D., Ghazari, A., Nadvornick, W., Liao, M., Carson, B., Goorsky, M., and Ghoniem, N. Mass loss, sublimation, and surface damage of lanthanum hexaboride in an arc jet plasma. *Journal of Applied Physics*, 133(5), 2023.
- [Ghoniem et al., 2023] Ghoniem, N., Patel, S., Ghazari, A., Nadvornick, W., Dickstein, D., Williams, B., and Hughes, D. Design, fabrication, and testing of a water-cooled tungsten-foam high-heat flux plasma-facing module. *Fusion Engineering and Design*, 193:113633, 2023.
- [Li et al., 2023a] Li, Y., Ghoniem, N., Baker, K., Flores, B. R., Black, T., Hollenbeck, J., and Po, G. A coupled vacancy diffusion-dislocation dynamics model for the climb-glide motion of jogged screw dislocations. *Acta Materialia*, 244:118546, 2023a.
- [Li et al., 2023b] Li, Y., Po, G., Cui, Y., and Ghoniem, N. Prismatic-to-basal plastic slip transition in zirconium. *Acta materialia*, 242:118451, 2023b.
- [Murali et al., 2023] Murali, N., Ghazari, A., Zheng, S., Jin, K., Fisher, T. S., Ghoniem, N. M., and Li, X. High-temperature oxidation of haynes 282 microtubes in co₂. *Materials at High Temperatures*, 40(3):218–229, 2023.
- [Kutsaev et al., 2024] Kutsaev, S. V., Agustsson, R., Boucher, S., Carriere, P., Ghoniem, N., Kaneta, K., Kravchenko, M., Li, A., Moro, A., Patel, S., et al. Feasibility study of high-power electron linac for clinical x-ray road-flash therapy system. *Frontiers in Medical Engineering*, 2:1382025, 2024.
- [Li et al., 2024] Li, Y., Lalani, I., Maron, M., Hixon, W., Wang, B., Ghoniem, N., and Po, G. Temperature-activated dislocation avalanches signaling brittle-to-ductile transition in bcc micropillars. *arXiv preprint arXiv:2409.16987*, 2024.
- [Maron et al., 2024] Maron, M., Li, Y., Lalani, I., Baker, K., Flores, B. R., Black, T., Hollenbeck, J., Ghoniem, N., and Po, G. Spatially-resolved

cluster dynamics modeling of irradiation growth. *International Journal of Plasticity*, 177:103989, 2024.

- [McElfresh et al., 2024] McElfresh, C., Ghazari, A., Ghoniem, N., and Mar-
ian, J. Fracture modes and grain growth of tungsten during extreme
cyclic heating. *Journal of Nuclear Materials*, page 155196, 2024.
- [Takahashi et al., 2024] Takahashi, A., Kasuya, T., and Ghoniem, N. Stress
field and interaction forces between dislocations and precipitate distri-
butions. *International Journal for Numerical Methods in Engineering*,
125(11):e7468, 2024.
- [Abe et al.,] Abe, K., CRPP-EPFL, N. B., Ghoniem, N., Jones, R., Ko-
hyama, A., Kurtz, R., Matsui, H., and Muroga, T. General chairman
gr odette, university of california, santa barbara, usa. ????
- [Blanchard et al.,] Blanchard, J. P., Snead, L., and Ghoniem, N. Laser
fusion materials. ????
- [Breeder,] Breeder, L. M. Critical fusion nuclear material science activities
required over the next decade to establish the scientific basis for a
fusion nuclear science facility overview and. ????
- [Bulatov et al.,] Bulatov, V. V., Diaz de la Rubia, T., Phillips, R., Kaxiras,
E., and Ghoniem, N. Multiscale modelling of materials(boston ma, 30
november- 3 december 1998). In *Materials Research Society symposia
proceedings*. Materials Research Society, ????
- [Cheng et al.,] Cheng, E., Creedon, R., Wong, C., Herring, J., Ghoniem,
N., Hasan, M., Martin, R., Najmabadi, F., and Sharafat, S. Blanket
concepts for the aries commercial tokamak reactor study. ????
- [Chrzan et al.,] Chrzan, D. C., Daw, M., Ghoniem, N. M., Gumbsch, P.,
Morris Jr, J., and Odette, R. Symposium w. ????
- [El-Awady and Ghoniem,] El-Awady, J. A. and Ghoniem, N. M. Plastic
flow in confined volumes. ????
- [El-Azab and Ghoniem,] El-Azab, C. A. and Ghoniem, N. Progress and
status. ????
- [Erel and Ghoniem,] Erel, C. and Ghoniem, N. 7.1 the origin of strain
avalanches in submicron plasticity in fcc metals-t. crosby, g. po. ????

- [Ghoniem, a] Ghoniem, N. M., Tong, S.-H., and Sun, L. (2000). Parametric dislocation dynamics: a thermodynamics-based approach to investigations of mesoscopic plastic deformation. *Physical Review B*, 61(2):913, 1999a.
- [Ghoniem, b] Ghoniem, N. 8.1 modeling concurrent radiation damage and plastic deformation. In T. Crosby, G. Po. 1999b.
- [Ghoniem, c] Ghoniem, N. Computational dislocation dynamics. *Mechanical and Aerospace Engineering Department University of California, Los Angeles, CA*, 90095-1597, 1999c.
- [Ghoniem, d] Ghoniem, N. Atomistic-dislocation dynamics modeling of fatigue microstructure and crack initiation. *Mechanical and Aerospace Engineering Department University of California, Los Angeles, CA*, pages 90095–1597, 1999d.
- [Ghoniem, e] Ghoniem, N. Modeling the brittle-ductile transition in ferritic steels—S. J. Noronha. 1999e.
- [Ghoniem et al., a] Ghoniem, N., Blanchard, J., Rivera, D., Gao, E., Wasfy, M., and Martin, C. Multi-physics, multiscale modeling of plastic deformation in plasma-facing components. In *Book of Abstracts*, page 64. 1999a.
- [Ghoniem et al., b] Ghoniem, N., Sheng, A., and Po, G. A unified discrete defect dynamics framework for plasticity and fracture. 1999b.
- [Ghoniem, f] Ghoniem, N. M. 12. distribution availability statement AFRL-SR-AR-TR. 07_0234. 1999f.
- [Ghoniem, g] Ghoniem, N. M. Helium migration and its influence on cavity. 1999g.
- [Ghoniem, h] Ghoniem, N. M. Perspectives on the role of theory and modeling in the development of materials for fusion energy. 1999h.
- [Ghoniem et al., c] Ghoniem, N. M., Brown, A., and El-Awady, J. Plasticity of nano- and micro-pillars. 1999c.
- [GHONIEM et al.,] GHONIEM, N. M., HEINISCH, H. L., HUANG, H., KUBIN, L., and YU, J. Symposium on multiscale materials modeling. 1999.

- [Gorbts et al.,] Gorbts, Z., Issacci, F., Jun, I., Sharafat, S., Ying, A., and Ghoniem, N. merallfi ‘amfimam. ????
- [Grotz et al.,] Grotz, S., Ghoniem, N., Bartlit, J., Bathke, C., Blanchard, J., Cheng, E., Chu, Y., Conn, R., Cooke, P., Creedon, R., et al. The titan reversed-field pinch lithium-vanadium fusion power core design. ????
- [Hasan et al.,] Hasan, M., Blanchard, J., Conn, R., Cooke, P., Ghoniem, N., and Grotz, S. and blanket of the 18 mw/m¹ neutron wall loading titan reversed-field-pinch (rfp) fusion reactor [1] using liquid-lithium as coolant and v-3ti-1si as structural material is described. the first wall is made of tubes and the blanket coolant channels are a combination of tubular, square and rectangular channels. the. ????
- [Katoh et al.,] Katoh, Y., Hu, X., Parish, C., Edmondson, P., Garrison, L., Rapp, J., Zinkle, S., Snead, L., Wirth, B., Kurtz, R., et al. Impact of neutron irradiation on plasma-materials interactions. ????
- [Lazar and Ghoniem,] Lazar, D. S. and Ghoniem, N. 8.3 singularity-free dislocation dynamics with strain gradient elasticity-g. po, m. ????
- [Sharafat and Ghoniem,] Sharafat, E. O. I. V.-S. and Ghoniem, N. Comparison of a microstructure evolution model with. *This report has been reproduced from the best available copy.*, page 216, ????
- [Snead et al.,] Snead, L., Ferguson, P., Ghoniem, N., Marian, J., Odette, G., Wendel, M., and Wirth, B. Fusion material irradiation test station (fmits) at sns. ????
- [Takahashi et al.,] Takahashi, A., Kawanabe, M., and Ghoniem, N. M. Delta* g-precipitate strengthening in nickel-based superalloys. *Philosophical Magazine*, ????
- [Walgraef and Ghoniem,] Walgraef, D. and Ghoniem, N. Patterns, defects and materials instabilities, cargèse, september 4-15, 1989. *NATO ASI series. Series E, Applied sciences*, ????
- [Williams et al.,] Williams, B., Sharafat, S., Ghoniem, N., and Ying, A. Fesac tec white paper robust cellular solid breeder offering potential for new blanket designs with high tritium breeding ratio. ????