DESCRIPTION

The *Journal of Nuclear Materials* publishes high quality papers in materials research for nuclear applications, primarily fission reactors, fusion reactors, and similar environments including radiation areas of charged particle accelerators. Both original research and critical review papers covering experimental, theoretical, and computational aspects of either fundamental or applied nature are welcome.

The breadth of the field is such that a wide range of processes and properties in the field of materials science and engineering is of interest to the readership, spanning atom-scale processes, microstructures, thermodynamics, mechanical properties, physical properties, and corrosion, for example.

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Fission reactor materials, including fuels, cladding, core structures, pressure vessels, coolant interactions with materials, moderator and control components, fission product behavior. Materials aspects of the entire fuel cycle. Materials aspects of the actinides and their compounds. Performance of nuclear waste materials; materials aspects of the immobilization of wastes. Fusion reactor materials, including first walls, blankets, insulators and magnets. Neutron and charged particle radiation effects in materials, including defects, transmutations, microstructures, phase changes and macroscopic properties. Interaction of plasmas, ion beams, electron beams and electromagnetic radiation with materials relevant to nuclear systems. **Topics NOT covered by JNM**

Topics in nuclear engineering and other areas not addressing materials, such as: Particle transport, cross-sections, shielding or isotope ratios (Radiation Physics and Chemistry; Annals of Nuclear Energy, Applied Radiation and Isotopes) Process engineering (Materials Science and Engineering A; Materials and Design) Leaching or chemical kinetics studies in aqueous, salt or other media (Hydrometallurgy; Chemical Engineering Science) Thermal hydraulics or properties of fluids (Nuclear Engineering and Design) Fission or fusion reactor design and technology (Nuclear Engineering and Design; Fusion Engineering & Design) Plasma physics (Physics Letters A) Materials topics not addressing nuclear applications, such as general studies in: Physical and chemical properties including modeling and simulation (Materials Science and Engineering A; Materials Letters) Metallurgy (Journal of Alloys and Compounds; Materials Science and Engineering A) Corrosion (Corrosion Science) Welding and joining (Journal of Alloys and Compounds; Materials and Design) Ceramics (Journal of the European Ceramics Society; Ceramics international)
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Materials scientists.

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**Topics covered by JNM:** Fission reactor materials, including fuels, cladding, core structures, pressure vessels, coolant interactions with materials, moderator and control components, fission product behavior. Materials aspects of the entire fuel cycle. Materials aspects of the actinides and their compounds. Performance of nuclear waste materials; materials aspects of the immobilization of wastes. Fusion reactor materials, including first walls, blankets, insulators and magnets. Neutron and charged particle radiation effects in materials, including defects, transmutations, microstructures, phase changes and macroscopic properties. Interaction of plasmas, ion beams, electron beams and electromagnetic radiation with materials relevant to nuclear systems

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The Journal of Nuclear Materials publishes original research papers, critical reviews, and short communications. Full length papers should report on completed original work rather than incremental research and may embody results of extensive laboratory or field, theoretical or computational investigation, or new interpretations of existing problems. The work must have permanent value and make an original contribution to the field.

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