

# Subject Index

Volume 72 · Numbers 1, 2, 3, and 4  
July, August, October, and November 2017

14 MeV neutron materials, 248  
3D printing, 667

Ablation, 692  
Absorption, 374  
Accelerator, 148  
Activation analysis, 17  
Additive CO<sub>2</sub> gas, 188  
Additive manufacturing, 667  
Alfvén wave, 500  
Annealing, 785  
Antenna, 623

Benchmarking, 546  
experiment, 362  
Binary mixing, 188  
Blanket, 233, 537, 601  
breeder, 628, 801  
Breeding reactions, 469  
Broader Approach, 233  
Burn control, 162  
Burnout, 278

CANDOR, 731  
Ceramic breeder pebble bed, 255  
Closed divertor, 199  
Commissioning, 546  
Compact, 705  
Computational fluid dynamics, 271, 628  
Conceptual design, 760  
Confinement tuning, 162  
Cooling, 505  
test, 91  
Copper particle bed, 699  
Current drive, 623

DAGMC, 510  
DAG-MCNP, 595  
Data acquisition, 91

DCLL, 469  
blanket, 17, 660  
D-D fusion, 449  
Delta-wing, 796  
DEMO, 439, 537, 753, 780  
Detritiation system, 516  
Deuterium, 588  
experiment, 199  
retention, 574  
Diagnostic, 686  
Diffusion, 374  
DIII-D tokamak, 634  
Disruption, 766  
mitigation, 318  
Divertor, 211, 478, 537, 566,  
737  
Doped concentrations, 69  
DPA, 595  
Drones, 455  
D-T fusion, 248  
D-T neutrons, 362  
D-T pressure control, 773  
Dynamic hohlraum, 726

ECE diagnostic, 331  
ECH, 312, 505  
Electromagnetic, 640  
pulses, 41  
transient, 478  
Electron beam welding, 680  
Electron cyclotron emission, 49  
Electron cyclotron heating,  
312, 324  
transmission line, 616  
Electron distribution function, 99  
ELM pacing, 488  
EM analysis, 686  
Equilibrium field, 137  
Equivalent absorption, 69  
Expansion unit, 312  
Explosives, 455

Fast ions, 60  
Fast-ion loss detector, 60  
Fast-ion-driven MHD instability, 60  
Fatigue, 398  
Fatigue life, 673  
Ferrite, 483  
Ferritic-martensitic steel, 523  
FESS-FNSF, 510  
Finite element, 546  
analysis, 434, 640  
First wall, 188  
Flinabe, 382  
Flow channel insert, 660  
Free-surface, 796  
Fueling requirements, 780  
Fusion, 337, 705  
applications, 242  
materials development, 389  
neutron measurement, 120  
neutronics, 559  
nuclear technology, 233  
reactor, 1, 537  
reactor blanket, 645  
safety, 609  
target diagnostics, 120  
Fusion Nuclear Science Facility,  
347, 354

Gas gun model, 404  
Generative fabrication technologies,  
667  
Graphene, 713

Halo current, 478  
Hard X-ray diagnosis, 129  
Hastelloy X, 680  
H-bridge, 137  
HCCR, 469  
TBM, 760  
Heat removal, 699  
Heat sink, 566

- Heat transfer, 271, 601, 628  
 Heavy-ion irradiation, 785  
 He-cooled divertor, 300  
 Helicon, 623, 634  
     plasma, 588  
 Helium, 719  
     ion damage, 337  
     irradiation, 713  
 Helium-3, 731  
 Helium-cooled ceramic breeder, 188  
 Helium-cooled divertor, 222, 285,  
     294, 306  
 HEMJ, 294, 300  
 High heat flux, 566, 699  
 High-temperature operation, 199  
 High-temperature superconductor,  
     354, 789  
 High-Z divertor, 634  
 HL-2A tokamak, 129  
 Hot calibration source, 331  
 Hot isostatic pressing, 523  
 HTGR, 753  
 Hydrogen, 374, 747  
     isotopes retention, 785
- IEA, 609  
 IEDs, 455  
 Ignitor, 731  
 Impedance-matching network, 496  
 Impinging jet, 306  
     cooling, 285  
 Impurity, 488  
 Incoherent Thomson scattering, 99  
 Inert gas, 374  
 Inertial confinement fusion, 69, 449  
 Ingress of coolant event, 176  
 In-port cross-talks, 559  
 Intermetallics, 680  
 Ion source, 337  
 Irradiation facilities, 389  
 Irradiation hardening, 673  
 Isotopes, 242  
     permeation, 416  
 ITER, 49, 233, 312, 331, 368, 404,  
     505, 595, 640, 801  
     port plug diagnostics, 559
- Jet impingement, 294, 300, 566  
 Joining, 523  
 K-DEMO, 737, 766
- Landmines, 455  
 Lead, 362  
 Lead-lithium, 530  
 LHD, 199  
 Linear plasma experiments, 581  
 Li-Pb eutectic alloy, 374  
 Liquid blanket, 382  
 Liquid metal, 530  
     MHD, 601  
 Lithium, 488  
 Lithium metatitanate, 263  
 Loading mode, 398  
 Long-pulse ion source, 157  
 Lower hybrid, 483
- Magnet shielding, 347  
 Magnetic confinement, 76  
 Materials, 667  
 MAX phase ceramics, 692  
 MCNP, 559  
 Mechanical lap joint, 789  
 Metals detritiation, 1  
 MHD, 796  
     pressure loss, 660  
 Microwaves, 324  
 Mirror, 324  
 Miter bend, 616  
 Modulus, 398  
 Molecular dynamics, 382  
 Molten salt, 382, 747  
 MPEX, 588  
 Multichannel grid, 148
- Nb<sub>3</sub>Sn superconducting wires,  
     434  
 Negative ion source, 148  
 Neutral beam, 500  
     injector, 157, 496  
 Neutron  
     activation, 455, 609  
     generator, 449  
     irradiation, 652  
     source, 705  
 Neutronics, 17, 248, 731  
 NIF nuclear fusion diagnostics, 120  
 NIFS-HEAT-2, 680  
 Non-evaporable getter pump, 773  
 Nuclear heating, 469, 595  
 Numerical analysis, 271, 628  
 Numerical modeling, 546
- Operation, 546  
 Operation goal, 461
- Particle throughput, 780  
 Passive oxidation, 516  
 Pd-Ag diffuser, 426  
 Pebble bed, 263  
 Permeability, 416  
 Permeation, 747  
 Permeator, 426  
 PET isotopes, 242  
 Plant availability, 461  
 Plasma, 337  
     control, 500  
     disruption mitigation, 404  
 Plasma-facing components, 222, 337,  
     581, 713  
 Plasma-facing materials, 211,  
     574, 692  
 Plasma-material interactions,  
     337, 581  
 Port plugs, 686  
 Post-irradiation annealing, 645  
 Post-weld heat treatment, 645  
 Power exhaust, 211  
 Pre-compaction, 255  
 Preliminary design, 760  
 Pumping efficiency, 780
- Quench, 439
- R&D facilities, 581  
 Radial build definition, 347  
 Radial X-ray camera, 91  
 Radiating shock, 726  
 Radiation damage, 510  
 Radiation transport, 368  
 Radio frequency ion source, 496  
 Radioactive waste, 609  
 Radiography, 242  
 Reactor, 211  
 Real-time tomography, 129  
 Recovery, 374  
 Recrystallized, 574  
 RELAP5, 176  
 Reversed field pinch, 137  
 Reversed heat flux, 306  
 RF power transmission, 496
- Safety, 731  
 Segmented magnet, 789

- Selective laser sintering, 667  
 Shattered cryogenic pellet, 404  
     injection, 318  
 ShenGuang II laser facility, 41  
 Shield optimization, 354  
 SiC, 692  
 SiC/SiC composite, 398  
 Simulation, 162  
 Small specimen, 398  
 Small-angle beam sweeping,  
     157  
 Spherical tokamak, 354  
 Standardization, 389  
 Steady-state operation, 199  
 Stellarator, 76, 546  
 Stress analysis, 766  
 Stress-relaxation, 255  
 Structural material, 645  
 Superconducting magnet, 439,  
     537, 789  
 Superthermal electrons, 49  
 Surface damage, 719  
 Surface preparation, 574  
 Swirl flow, 278  
 Switch, 324  
 Target geometries, 41  
 Temperature response during  
     LOCA, 347  
 Test blanket module, 188, 801  
 Test facility, 248  
 Thermal hydraulics, 285, 306  
 Thermal mixing, 796  
 Thermal pre-stress, 434  
 Thermal property, 673  
 Thermohydraulic analysis, 737  
 Thermo-mechanical, 300  
     analysis, 616  
 Thermomechanics, 255  
 Titanium, 747  
 Torsatron, 76  
 Transient hot-wire, 263  
 Tritium, 416, 426, 516, 609, 652  
     breeding ratio, 347, 354, 510  
     in metals, 1  
     outflow, 753  
 permeation, 537  
 production, 753  
 Tuner, 483  
 Tungsten, 337, 523, 652, 713, 719, 785  
     armor, 222  
     coatings, 634  
     rod, 673  
 Tuning algorithm, 483  
 Turbulence model, 601  
 TZM inserts, 634  
 Ultrasonic Doppler velocimetry, 530  
 Vacuum vessel, 595  
 Variance reduction, 368  
 Velocity profile measurement, 530  
 Void-induced stress concentrations, 434  
 Wall shear stress, 278  
 Water impinging jet flow, 699  
 Waveguide, 312, 324, 505  
 Wendelstein 7-X, 176, 546  
 Z-pinch, 726