

SUBJECT INDEX

Fusion Science and Technology



American Nuclear Society
Scientific Publications

Volume 67, Numbers 1, 2, 3, and 4
January, March, April, and May 2015

CITATIONS ARE BY PAGE NUMBER

4pi, 762

A

Accident analysis, 432
Activation, 179
Active Gas Handling System, 571
Adsorbent, 499
Agricultural crops, 479
Air effect, 408
Apparent solubility, 503
Applied research, 666
ARIES, 49, 167
 ACT1, 125
 power plant, 1, 22, 49, 75, 179, 193,
 220
Atmospheric pressure plasma, 650
Atomic Energy of Canada Limited, 588

B

Beta-induced X-ray spectrometry, 274,
507
Blanket, 49
 dual-coolant lead-lithium, 193
 SiC/SiC, 22
Breakthrough concentration, 567

C

CaF₂ solid scintillator, 404
Calibration, 357
Calorimeter, 390
Carbon, 245

Catalytic
 isotope exchange, 270
 membrane reactor, 463
 package, 270
Catalyzed molecular sieves, 490
Ceramics, 412, 662
Chemical speciation, 627
Chromium, 519
Combined electrolysis and catalytic
 exchange, 258
Combustion water purification, 623
Concrete, 339
Confinement, 278
Contamination, 596
 measurement, 631
Corrosion, 511, 519
Cryodistillation, 451
Cryogenic
 adsorption, 495
 molecular sieve bed adsorber, 567

D

Damage, 316
Decay heat, 179
DEMO fuel cycle, 531
Detection limit comparison, 282
Detritiation, 312, 588
 of atmosphere, 262, 278
 of water, 451, 463, 677
 system, 365
Dielectric mirrors, 771
Displacement chromatography, 584
Divertor, 49, 158
 helium cooled, 142, 732
 radiative, 125

 target plates, 193
 tungsten based, 22
Domes, 762
Dual-temperature, 332

E

Eco-physiology, 447
ECRH-assisted start-up, 693
Edge plasma, 125
Electrically switched ion exchange, 608
Electrochemical hydrogen pump, 600
Electron cyclotron emission, 705
Engineering and physics design, 1
Enrichment, 592
Environmental
 impact, 324
 modeling, 343, 479
 monitoring, 527
 samples, 250
Equatorial EC launcher, 718

F

F82H, 379, 467
Field measurements, 254
First wall, 551
Flash vaporization, 792
Flow-cell detector, 404
Fluidized state, 658
Fracture, 158
 analysis, 1
Fuel cycle, 241, 400
Fuel storage bay, 296
Fundamental science, 666

Fusion neutron source, 241
Fusion safety, 167

G

Gas analysis, 547
Gear type, 499
Glow discharge, 471
Grassland ecosystem, 447

H

Heating and current drive, 220
Helium, 580
 target, 535
HEMJ concept, 732
High heat flux, 745, 754
 test, 784
High pressure, 612
Highly tritiated water, 312
 processing, 483
Hydride, 371, 375, 435
Hydrogen, 245
 cryogenic distillation, 266
 desorption simulation, 394
 diffusion coefficient, 379
 isotopes, 266, 439, 471, 495, 612
 exchange, 487
 retention behavior, 551
 separation, 667
 isotopologues, 555, 559
 permeability, 459
 permeation, 511, 658
 behavior, 467
 uptake, 511
Hypervapotron
 control parameters, 745, 754

I

Impingement cooling, 732
INCONEL 625, 428
Inert blanketing, 416
Inertial guidance vacuum calorimeters,
 282
Infrared spectroscopy, 357
In-situ observation, 515
Intense tritium source of (anti)neutrino,
 535
Interfacial oxidation, 784
Interim storage, 290
Inter-laboratory exercises, 250
Ion separation, 608
Ionization chamber, 523
Isotope
 effects, 471
 laboratory operation, 635
 separation, 258, 584
Isotopic
 exchange, 563
 separation, 643

ITER, 627, 705, 718
 storage and delivery system, 671
 bed design, 671

J

Joint European Torus, 451, 571
JT-60SA, 693

K

KAERI, 304

L

Lanthanum nickel aluminum, 580
Laser ablation, 762
Leica, 762
Licensing, 635
Linear plasma, 619
Liquid hydrogen, 357
Liquid phase catalytic exchange, 286
Liquid scintillation counting, 623
Lithium-6, 584
Lithium-lead, 658
Lithium titanate, 386
Longitudinal dispersion coefficient, 439

M

Magnetohydrodynamics
 ideal, 220
Maintenance, 22
Mechanical properties, 459
MELCOR, 167
Mesoporous materials, 592
Metal hydride, 416
 bed, 400
Metallic particle absorbers, 792
Microwave heating, 604
Model, 286, 435
Molten salt reactor, 681
Multilayer, 771
Multi-purpose plant, 258

N

Nafion, 443
Neutrino
 magnetic moment, 535
 mass, 274
Neutron irradiation, 771
Neutronics, 1, 107
Nickel hexacyanoferrate, 608
Nondestructive assay, 390
Nuclear fission and fusion, 304

O

One-dimensional model, 693
Optical coating, 316
Organically bound tritium, 250, 447,
 479, 623

P

Package performance, 266
Packed-bed adsorption column, 439
Paint, 320
 hydrophobic, 339
Penetration, 320
Percolation, 382
Permeability, 647, 662
Permeation, 412, 475, 576, 681
 process, 262
Permeators, 328
Plasma-facing components, 142
 W/Cu, 784
Plasma physics, 1, 75
Plasma-wall interaction, 278
Plastic scintillator, 654
Platinized molecular sieve bed, 312
Platinized zeolite catalyst, 483
Platinum microreactor, 328
Poloidal field coils, 220
Power core configuration, 22
Preheating, 503
Pressure loss, 499
Processing, 571
Proportional gas counter, 408, 523
Proton conducting oxide, 600
Proton exchange membrane, 443, 491
Pump oil, 596
Purification system, 324

Q

Quadrupole mass spectrometer, 650

R

Radial resolution, 705
Radiation
 damage, 361, 107
 exposure, 443
 protection ordinance, 635
Radioactive
 gases, 527
 waste, 527
 management, 179
Radiogenic ³He, 459
Raman spectroscopy, 547, 555, 559,
 612
RAMI, 531
Reactive vacancy solution theory, 495
Recycling and clearance, 179

Reduced-activation ferritic/martensitic steel, 361
Refurbishment and dismantling, 631
Regeneration, 604
Reliability block diagram, 531
Research and development activities, 671

S

Scavenging, 254
Sensitivity study, 463
Sensors, 639
Severe accident, 167
SFBR, 300
Shielding analysis, 107
Silicon drift detector, 507
Simulation code, 332
Sodium hydrolysis, 300
Software, 270
Soil, 382
Source term, 627
Spallation source, 324
Sputtering, 515
Stainless steel, 475
 type 316, 615
Structure analysis, 647
Synthetic zeolite, 604
System integration, 22, 193
System test, 336

T

Technical document summary, 343
Test blanket module, 576
Test blanket system, 543
TEXTOR plasma, 619
Thermal
 cycling absorption process, 643
 desorption, 245
 hydraulics, 142
 stratification, 296

Thermomechanics, 1, 158
TiN + TiC + TiN film, 647
Tokamak, 75
 exhaust processing, 308
Transport simulation, 1, 220
Trap, 455
Trickle bed reactor, 328
Tritiated waste, 290
 characterization, 631
Tritiated water (HTO), 254, 487, 491, 519, 563, 592
 exchange rate, 349
 long-term atmospheric release, 353
 spatial distribution in soil depth, 353
 washout coefficient, 349
 washout model, 349
Tritium, 286, 296, 300, 316, 320, 339, 371, 375, 379, 400, 412, 416, 420, 424, 428, 455, 475, 563, 576, 580, 596, 639, 643, 681
 accident, 343
 accountancy, 365, 420, 424, 547
 analysis, 639
 bed, 662
 breeder, 386
 breeding ratio, 107
 calculation code, 241
 calorimetry, 282
 compatibility, 539
 concentration, 336
 durability, 365
 exposure, 491
 extraction, 262, 543, 567
 facility, 308
 gas analysis, 555
 handling, 432, 588
 inventory, 420, 424
 measurement, 654
 monitoring, 408, 507, 523, 600
 operation, 539
 plant, 308

 processing, 543
 recovery, 650
 release, 615
 properties, 386
 removal facility, 677
 retention, 361
 storage, 371
 technologies, 304, 666
 trapping, 619
 water monitor, 404
Tritium Laboratory Karlsruhe, 274
Tungsten, 503, 515
Turbomolecular pump, 539

U

UEDGE, 125
Under vacuum, 615
Unsaturated soil, 353
Uranium, 394
U.S. Department of Energy, 432

V

Vacuum plasma spraying tungsten, 551
Vacuum vessel, 428

W

Waste, 455
 classification, 290
 management, 390
Water-hydrogen, 332
 isotope exchange, 483
Waveguide pellet acceleration, 792
Weak current, 336

Z

Zirconium cobalt, 394, 435