CONTENTS / DECEMBER 1983—VOL. 63, NO. 3

TECHNICAL PAPERS

FISSION REACTORS

359 Physics of a Gaseous Core Reactor / Hugo van Dam, J. Eduard Hoogenboom

NUCLEAR SAFETY


397 Performance Characteristics of the Annular Core Research Reactor Fuel Motion Detection System / J. G. Kelly, K. T. Stalker

FUEL CYCLES

415 Iterative Solution to the Optimal Poison Management Problem in Pressurized Water Reactors / J. P. Colletti, Samuel H. Levine, John B. Lewis

CHEMICAL PROCESSING

426 The Possibility for Spark-Initiated Explosion in Mixtures of Uranium Hexafluoride and Deuterium / Jon L. Maienschein

431 Oxidation of Pu(III) by Nitric Acid in Tri-n-Butyl Phosphate Solutions. Part II. Chemical Methods for the Suppression of Oxidation to Improve Plutonium Separation in Contactor Operation / Yu-Keung Sze, Joseph Alfred Gosselin

NUCLEAR FUELS

442 The Sodium-Bonding Pin Concept for Advanced Fuels Part I: Swelling of Carbide Fuel up to 12% Burnup / Michel Colin, Michel Coquerelle, Ian L. F. Ray, Claudio Ronchi, Clive T. Walker, Hubert Blank

RADIOACTIVE WASTE MANAGEMENT

461 Radionuclide Analyses Taken During Primary Coolant Decontamination at Three Mile Island Indicate General Circulation / Kenneth J. Hofstetter, C. G. Hitz, V. F. Baston, Anthony P. Malinauskas

(Continued)

ON THIS COVER

This month's cover is taken from the paper by M. A. Molecke et al. and shows the effects of alloying elements on the volume fraction of beta phase (dark color) and texture on low and highly alloyed TiCode-12 rolled plate. The source for this figure is Sandia National Laboratories and Titanium Metals Corporation of America.
CONTENTS / DECEMBER 1983—VOL. 63, NO. 3

(Continued)

470 Leaching of $^{137}$Cs, $^{134}$Cs, and $^{129}$I from Irradiated UO$_2$ / L. H. Johnson, K. I. Burns, H. H. Joling, C. J. Moore

476 Materials for High-Level Waste Canister/Overpacks in Salt Formations / Martin A. Molecke, James A. Ruppen, Ronald B. Diegle

DEPARTMENTS

353 Authors

507 Letters to the Editor

511 Technical Reviewers

515 Volume 63 Indexes

Volume 63 Contents