

Fusion Technology™

CONTENTS / SEPTEMBER 1989—VOL. 16, NO. 2

TECHNICAL PAPERS

SAFETY/ENVIRONMENTAL ASPECTS

- 125 Environmental Effects of Fusion Power Plants. Part III: Potential Radiological Impact of Environmental Releases / *Clay E. Easterly, Gorman S. Hill, Johnnie B. Cannon*

TRITIUM SYSTEMS

- 137 Conversion of Low-Concentration Tritium Gas to Tritiated Water / *H. Noguchi, Clay E. Easterly, M. R. Bennett*
- 143 Computer Simulation of Tritium Systems for Fusion Technology / *Eugen Gabowitsch, Gert Spannagel*

PLASMA ENGINEERING

- 149 Inductive Current Drive of Pinch Plasmas / *T. J. Dolan*
- 157 Alpha-Particle Losses in Compact Toratron Reactors / *S. L. Painter, J. F. Lyon*
- 172 Assessment of the Impact of Cyclotron Emission on the Performance of Next-Generation Tokamaks in the Presence of an Absorbing Wall / *Kurt Borrass*
- 185 Thermally Stable Operation of Engineering Test Reactor Tokamaks / *S. K. Ho, Max E. Fenstermacher*
- 197 Generalized Saddle Point Condition for Ignition in a Tokamak Reactor with Temperature and Density Profiles / *Osamu Mitarai, Akira Hirose, Harvey M. Skarsgard*

ENERGY CONVERSION

- 211 Thermal Energy Conversion Systems Overview for Fusion Reactors / *Ali E. Dabiri*

PLASMA HEATING SYSTEMS

- 225 Error Analysis of a Probe Array Used for Transient Radio-Frequency Impedance Measurement in Ion Cyclotron Resonance Heating Experiments / *Zhaoshen Wang, Yiamin Wang, Dezheng Xu*

(Continued)

ON THIS COVER

This month's cover, taken from the paper by Rogers and Sandquist on isotopic hydrogen fusion in metals, is based on the palladium lattice structure shown in Fig. 1. The "structure" superimposed on the atom sites is based on the logo used for the proceedings of the recent meeting on cold fusion at Santa Fe, New Mexico, sponsored by the Los Alamos National Laboratory. The help from Los Alamos in providing a copy of this logo is gratefully acknowledged.

CONTENTS / SEPTEMBER 1989—VOL. 16, NO. 2

(Continued)

SPECIAL SECTION CONTENTS

COLD FUSION

229 Special Section: Technical Notes on Cold Fusion

TECHNICAL NOTES

- 231 Virtual-State Internal Nuclear Fusion in Metal Lattices / *Robert W. Bussard*
- 237 On the Possibility of a Nuclear Mass-Energy Resonance in D + D Reactions at Low Energy / *J. Rand McNally, Jr.*
- 240 Advanced Energy Conversion Methods for Cold Fusion / *Mark A. Prelas*
- 243 On the Possibility of Deuteron Disintegration in Electrochemically Compressed D⁺ in a Palladium Cathode / *Magdi Ragheb, George H. Miley*
- 248 Preliminary Experimental Study on Cold Fusion Using Deuterium Gas and Deuterium Plasma in the Presence of Palladium / *Albert G. Gu, Robert K. F. Teng, Mark S. Miller, Wayne J. Sprouse*
- 251 A Novel Apparatus to Investigate the Possibility of Plasma-Assisted Cold Fusion / *David N. Ruzic, Kenneth D. Schatz, Phi Long Nguyen*
- 254 Isotopic Hydrogen Fusion in Metals / *Vern C. Rogers, Gary M. Sandquist*
- 260 Electrochemically Induced Deuterium-Tritium Fusion Power Reactor—Preliminary Design of a Reactor System / *Y. Oka, S. Koshizuka, S. Kondo*
- 263 D₂O-Fueled Fusion Power Reactor Using Electrochemically Induced D-D_n, D-D_p, and Deuterium-Tritium Reactions—Preliminary Design of a Reactor System / *Y. Oka, S. Koshizuka, S. Kondo*
- 268 Reactor Prospects of Muon-Catalyzed Fusion of Deuterium and Tritium Concentrated in Transition Metals / *Weston M. Stacey, Jr.*
-

DEPARTMENTS

- 117 Authors
- 276 Meeting Report
Summary of the U.S.-Japan Workshop on D-³He/Field-Reversed Configurations, Nagoya, Japan, March 20–23, 1989 / *Ming-Yuan Hsiao, Masami Ohnishi*
- 279 Book Review
Thermophysical Properties of Liquids in the Metastable (Superheated) State / reviewed by *P. Clark Souers*