

# Fusion Science and Technology

CONTENTS / JANUARY 2015—VOL. 67, NO. 1

## Special issue on ARIES-ACT Design Study

### TECHNICAL PAPERS

- 1** The ARIES Advanced and Conservative Tokamak Power Plant Study / *C. E. Kessel, M. S. Tillack, F. Najmabadi, F. M. Poli, K. Ghantous, N. Gorelenkov, X. R. Wang, D. Navaei, H. H. Toudeshki, C. Koehly, L. El-Guebaly, J. P. Blanchard, C. J. Martin, L. Mynsberge, P. Humrickhouse, M. E. Rensink, T. D. Rognlien, M. Yoda, S. I. Abdel-Khalik, M. D. Hageman, B. H. Mills, J. D. Rader, D. L. Sadowski, P. B. Snyder, H. St. John, A. D. Turnbull, L. M. Waganer, S. Malang, A. F. Rowcliffe*
- 22** ARIES-ACT1 System Configuration, Assembly, and Maintenance / *X. R. Wang, M. S. Tillack, C. Koehly, S. Malang, H. H. Toudeshki, F. Najmabadi, ARIES Team*
- 49** Design and Analysis of the ARIES-ACT1 Fusion Power Core / *M. S. Tillack, X. R. Wang, D. Navaei, H. H. Toudeshki, A. F. Rowcliffe, F. Najmabadi, ARIES Team*
- 75** Physics Basis for an Advanced Physics and Advanced Technology Tokamak Power Plant Configuration: ARIES-ACT1 / *C. E. Kessel, F. M. Poli, K. Ghantous, N. N. Gorelenkov, M. E. Rensink, T. D. Rognlien, P. B. Snyder, H. St. John, A. D. Turnbull*
- 107** Neutronics Characteristics and Shielding System for ARIES-ACT1 Power Plant / *L. El-Guebaly, L. Mynsberge, ARIES-ACT Team*
- 125** Plasma Heat-Flux Dispersal for ACT1 Divertor Configurations / *M. E. Rensink, T. D. Rognlien*
- 142** Experimental Evaluation of the Thermal Hydraulics of Helium-Cooled Divertors / *M. Yoda, S. I. Abdel-Khalik, D. L. Sadowski, B. H. Mills, J. D. Rader*
- 158** Thermomechanical Analysis for an All-Tungsten ARIES Divertor / *James P. Blanchard, Carl Martin*
- 167** ARIES-ACT1 Safety Design and Analysis / *Paul W. Humrickhouse, Brad J. Merrill*
- 179** Activation and Environmental Aspects of ARIES-ACT1 Power Plant / *L. El-Guebaly, L. Mynsberge, C. Martin, D. Henderson, ARIES-ACT Team*

(Continued)

# CONTENTS / JANUARY 2015—VOL. 67, NO. 1

(Continued)

- 193** ARIES-ACT2 DCLL Power Core Design and Engineering / *X. R. Wang, M. S. Tillack, C. Koehly, S. Malang, H. H. Toudeshki, F. Najmabadi, ARIES Team*
- 220** Physics Basis for a Conservative Physics and Conservative Technology Tokamak Power Plant: ARIES-ACT2 / *C. E. Kessel, F. M. Poli*