

# KERNTECHNIK

**INDEPENDENT JOURNAL FOR NUCLEAR ENGINEERING**  
ENERGY SYSTEMS - RADIATION - RADIOLOGICAL PROTECTION

## **EDITOR-IN-CHIEF**

*Anne Krüßenberg, Neufahrn, Germany*

## **EDITORIAL BOARD**

*Attila Aszódi, Budapest, Hungary*

*Xu Cheng, Karlsruhe, Germany*

*Yuri Kazansky, Obninsk, Russian Federation*

*Sören Kliem, Dresden, Germany*

*Horst-Michael Prasser, Zurich, Switzerland*

*Piero Ravetto, Torino, Italy*

*Andreas Schaffrath, Garching near Munich, Germany*

*Chul-Hwa Song, Daejeon, South Korea*

*Frank-Peter Weiß, Dresden, Germany*

**DE GRUYTER**

**ABSTRACTED/INDEXED IN** Baidu Scholar · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · Dimensions · EBSCO Discovery Service · Google Scholar · J-Gate · Journal Citation Reports/Science Edition · KESLI-NDSL (Korean National Discovery for Science Leaders) · Microsoft Academic · MyScienceWork · Naver Academic · Naviga (Softweco) · Primo Central (ExLibris) · ReadCube · SCImago (SJR) · SCOPUS · Semantic Scholar · Sherpa/RoMEO · Summon (ProQuest) · TDNet · WanFang Data · Web of Science: Current Contents/Engineering, Computing, and Technology; Science Citation Index Expanded · WorldCat (OCLC) · Yewno Discover

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work. The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

ISSN 0932-3902 · e-ISSN 2195-8580

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at [www.degruyter.com/kern](http://www.degruyter.com/kern).

**EDITOR-IN-CHIEF** Dr.-Ing. Anne Krüßenberg, Hirtenweg 33b, 85375 Neufahrn, Germany,  
Tel.: +49 (0)163 9866013, e-mail: [kerntechnik@degruyter.com](mailto:kerntechnik@degruyter.com)

**PUBLISHER** Walter de Gruyter GmbH, Berlin/Boston, Genthiner Straße 13, 10785 Berlin, Germany

**JOURNAL COORDINATOR** Anne Weberling, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany,  
Tel.: +49 (0)30 260 05-421, Fax: +49 (0)30 260 05-250, e-mail: [anne.weberling@degruyter.com](mailto:anne.weberling@degruyter.com)

**RESPONSIBLE FOR ADVERTISEMENTS** Markus Kügel, De Gruyter, Rosenheimer Str. 143, 81671 Munich, Germany.  
Tel.: +49 (0) 89 76 902-424, e-mail: [anzeigen@degruyter.com](mailto:anzeigen@degruyter.com)

© 2022 Walter de Gruyter GmbH, Berlin/Boston, Germany

**TYPESETTING** TNQ Technologies, Chennai, India

**PRINTING** druckhaus köthen GmbH & Co. KG, Köthen, Germany

## Contents

Peizhao Yu, Jianxiang Zheng, Jun Li, Huifang Miao,  
Ling Wu and Danying Gu  
**A study of RCS depressurization strategy of CPR1000  
SAMG — 251**

Mazzammal Hussain, Khurram Mehboob, Syed Zafar Ilyas,  
Saima Shaheen and Alhawsawi Abdulsalam  
**Drones application scenarios in a nuclear or radiological  
emergency — 260**

Tae Ho Woo, Chang Hyun Baek and Kyung Bae Jang  
**Safety analysis for integrity enhancement in nuclear  
power plants (NPPs) in case of seashore region  
site — 271**

Wei Zhang, Hanbo Lin, Jun Tao, Chunhua Bian, Minglei Hu,  
Feng Xu and Linjun Xie  
**Frictional wear characteristics of nickel-based alloy and  
reactor material in pressure vessel reactor — 278**

Suxia Hou and Jijun Luo  
**Improving FNMC for the matrix effect of spherical shell  
plutonium samples — 287**

Nafise Yazdani, Mohammad Mehdi Firoozabadi  
and Mehdi Zangian  
**Calculation of core neutronic parameters in electron  
accelerator driven subcritical TRIGA reactor — 298**

Zuhair, R. Andika Putra Dwijayanto, Sriyono, Suwoto  
and Zaki Su'ud  
**Preliminary study on TRU transmutation in VVER-1000  
fuel assembly using MCNP6 — 305**

Siming Guo, Jun Zhang, Lei Shi, Qingwen Chen  
and Wang Kun Chen  
**Research on the application of  $^{22}\text{Na}$  radiolocation  
detection technology in advanced manufacturing process  
control — 316**

Riham M. Refeat, Ahmed M. Refaey and  
Salwa H. Abdel-Latif  
**Coupling MCNP6/ANSYS codes to calculate axial  
temperature and power distribution in a VVER-1000 fuel  
assembly — 323**

Salwa H. Abdel-Latif, Ahmed M. Refaey, Sayed A. Elnaggar,  
Nehad A. Abdelrihem and Samaa A. Wasfy  
**Experimental and theoretical investigation of forced  
convection heat transfer with CNTs and CuO water based  
nano-fluids — 336**

Said M. A. Ibrahim, Abdelfatah Abdelmaksoud  
and W. Helal  
**Thermal hydraulic characteristics of silicon irradiation in a  
typical MTR reactor — 351**

Seyed Mortaza Taheri Balanoji, Hossein Zaki Dizaji  
and Akbar Abdi Saray  
**Photon dosimetry using selective data sampling with  
Particle Swarm optimization algorithm based on NaI(Tl)  
scintillation detector — 364**

**Calendar of events — 373**