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Dear reader, with great pleasure we provide you with the third issue of Atom Indonesia in 2018, namely Volume 44, No.1 (2018). In this issue, we proudly announce a piece of very good news that Atom Indonesia has been indexed by Scopus, so it becomes one of the international journals recognized worldwide. Atom Indonesia has also been indexed by Google Scholar, DOAJ, Crossref, ISJD, and IAEA INIS. Atom Indonesia has provided a Digital Object Identifier (DOI) for each article accepted, so that it can be linked to Crossref. By this indexing, it is expected that Atom Indonesia will become better known among the researchers from around the world and easier to access, thus also increase the impact factor of the journal.

Important news is that Atom Indonesia has been reaccredited with the highest rank (A) category by the Ministry of Research, Technology and Higher Education (RISTEKDIKTI), and also by the Indonesian Institute of Science (LIPI) with the numbers of 36b/E/KPT/2016 and 767/AU3/P2MI-LIPI/08/2017, respectively. Additionally, the certificate as an international journal was awarded by the Indonesian Institute of Science (LIPI) starting June 2017 until August 2022. Further information on, and the full articles of, Atom Indonesia Vol.43 No.3 (2017) can be downloaded from <http://aij.batan.go.id>.

We are glad to inform you that, starting this year, the number of articles per issue has been increased from the previous seven to eight. The Atom Indonesia Vol. 44 No.1 (2018) contains eight articles discussing various applications of nuclear science and technology, ranging from the isotopic characterization of precipitation, inflow and outflow of lake Toba as a first assessment of lake water balance study; the analysis of hierarchical structure of mesoporous silica in nanometer scale by small angle scattering method; synthesis of nano- α - Al_2O_3 for ^{99}Mo adsorbent; high temperature oxidation behavior of Fe-Cr steel in air at 1000-1200 K; simulation of modified TRIGA-2000 with plate-type fuel under LOFA using EUREKA2/RR-code; the enhancement of uranium and thorium in Bangka tin slag; micronucleus frequencies and DNA repair gene XRCC3 polymorphism in radiation workers of the Center for Multipurpose Reactor; and the present status of marine radioecology in Jakarta Bay.

“The Isotopic Characterization of Precipitation, Inflow and Outflow of Lake Toba as a First Assessment of Lake Water Balance Study” was explored by P. Sidauruk, B. Pratikno, and E.R. Pujiindiyati from the Center for Isotopes and Radiation Application, National Nuclear Energy Agency, Jakarta, Indonesia. An Isotopic characterization of all identified hydrological units in Lake Toba such as precipitation, inflows, outflows, and lake water, as a first assessment of lake water balance study, has been conducted. The isotopic characterization was done through the interpretation of the relationship of D and ^{18}O values of collected samples from various water sources and their variations as a function of time and space. Rain water samples were collected from four rain collectors that were installed in the study area in a monthly sampling for a period of 12 months in 2014. Several samples from various water sources, *i.e.*, inflow streams, outflows, springs, and lake water, were also collected 2-3 times during this sampling period.

“The Analysis of Hierarchical Structure of Mesoporous Silica in Nanometer Scale by Small Angle Scattering Method” was written by S. Hadi, *et al.*, from the Department of Physics, Lambung Mangkurat University, Banjarbaru, Indonesia, under collaboration with I. Wijaya, A. Rahmandari, and M.C. Prihatiningsih from Polytechnic Institute of Nuclear Technology, National Nuclear Energy Agency Yogyakarta, Indonesia, I. Prasetyo from the Department of Chemical Engineering, Gadjah Mada University, Yogyakarta, Indonesia, A. Patriati and E.G.R. Putra from the Center for Science and Technology of Advanced Materials, National Nuclear Energy Agency, Serpong, Indonesia, and S. Soontaranon from Synchrotron Light Research Institute (SLRI), University Avenue, Muang District, Thailand. The analysis of hierarchical structure of mesoporous silica material with template of cetyltrimethylammonium bromide (CTAB) with co-surfactants of tetra-methylammonium hydroxide (TMAOH) and Triton X-100 was conducted by using the technique of small angle scattering (SAS) using neutron (SANS) and X-ray (SAXS). The analysis was supported by the data of nitrogen absorption and electron microscopy. The analysis showed that the concentration of CTAB affected the characteristics and pore structures of particles.

“Synthesis of Nano- α - Al_2O_3 for ^{99}Mo Adsorbent” was written by Kadarisman, *et al.*, from the Center for Radioisotope and Radiopharmaceutical Technology, National Nuclear Energy Agency, Serpong, Indonesia. The fission-product ^{99}Mo , having a high specific activity, is commonly used in alumina-based $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ generator. Due to the limitation on the use of fission-product ^{99}Mo , an alternative route for ^{99}Mo production, namely activation of natural molybdenum using thermal neutron, has been explored. Unfortunately, this neutron-activated ^{99}Mo has a low specific activity. Therefore, $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ generator based on neutron-activated ^{99}Mo requires a column with higher capacity adsorbent. Thus, in this study, the nanomaterial of alumina (nano- α - Al_2O_3) was synthesized which was expected to have a higher ^{99}Mo adsorption capacity, so that nano- α - Al_2O_3 could be potentially used as a matrix of column for $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ generator based on neutron-activated ^{99}Mo .

“High Temperature Oxidation Behavior of Fe-Cr Steel in Air at 1000-1200K” was written by Toto Sudiro from Research Center for Physics-Indonesian Institute of Sciences, Serpong, Indonesia. The high temperature oxidation behavior of Fe-Cr steel was studied in air at elevated temperatures of 1000, 1100 and 1200 K for up to 72 ks. The mass change of all samples was recorded in order to evaluate their oxidation kinetic. The structure of oxide scales was investigated by mean of X-ray diffraction and SEM-EDX. According to oxidation kinetic curve, the mass gain of oxidized sample increases with increasing oxidation time and temperature.

“Simulation of Modified TRIGA-2000 with Plate-Type Fuel under LOFA Using EUREKA2/RR-Code” was written by S. Dibyo and Ign. D. Irianto from the Center for Nuclear Reactor Technology and Safety, National Nuclear Energy Agency, Serpong, Indonesia, under collaboration with K.S. Sudjatmi from the Center for Applied Nuclear Science and Technology, National Nuclear Energy Agency, Bandung, Indonesia, and Sihana from the Department of Nuclear Engineering and Physics Engineering, Gadjah Mada University, Yogyakarta, Indonesia. The TRIGA-2000 research reactor in Bandung, Indonesia, has operated for over 50 years. Recently, the problem of fuel availability arises, since its fuel is no longer produced. A modification of reactor core with new plate-type fuel has been suggested. The study of the neutronic assessment of plate-type fuel elements reactor core had been done. The next assessment that needed to be done was thermal-hydraulic analysis. The purpose of this study is to simulate the thermal-hydraulic characteristics of major parameters, such as reactor power, fuel cladding temperature, and departure from nucleate boiling ratio (DNBR) due to LOFA transient, using EUREKA2/RR code.

“The Enhancement of Uranium and Thorium in Bangka Tin Slag” was written by S. Permana, *et al.*, from the Department of Metallurgy and Materials, University of Indonesia, Depok, Indonesia, under collaboration with A. Maksum from Department of Mechanical Engineering, Jakarta State Polytechnic, Indonesia, and K.S. Widana, *et al.*, from the Center of Nuclear Minerals Technology, National Nuclear Energy Agency of Indonesia, Jakarta, Indonesia. Several studies have indicated that consumer goods, air pollution, and by-products, residues, and waste products of natural resources exploitation contain uranium and thorium. In this research, the enhancement of these two metals was found to result from the extraction process of Bangka tin slag.

“Micronucleus Frequencies and DNA Repair Gene XRCC3 Polymorphism in Radiation Workers of Center for Multipurpose Reactor” was written by D. Ramadhani, *et al.*, from the Center for Radiation Safety Technology and Metrology, National Nuclear Energy Agency, Jakarta, Indonesia, under collaboration with S.M.H Faradz from the Center for Biomedical Research (CEBIOR), Central Laboratory of National Diponegoro Hospital, and Semarang, Indonesia. The carcinogenic effects of low radiation doses have not been fully understood until now. Studies on individuals that are occupationally exposed to low radiation doses can help to address this question. This study assesses the micronucleus (MN) frequencies as indicator of DNA damage in radiation workers that are occupationally exposed to low radiation dose. The influence of single nucleotide polymorphisms (SNPs) in XRCC3 gene on the frequency of micronuclei was also evaluated in this study.

“Synthesis, Structural and Magnetic Properties of $\text{La}_{0.5}\text{Ba}_{0.5}\text{CoO}_{2.75+x}$ ” was written by Z. Tan *et al* from Department of Materials Structure Science, Sokendai (The Graduate University for Advanced Studies), Tokai, Japan, under collaboration with S. Lee *et al* from Institute of Materials Structure Science, High Energy Accelerator Research Organization (KEK), Tokai, Japan. Hole doping to the Co^{3+} ion in cobaltite perovskites can significantly modify the electromagnetic properties. The hole-doped cobaltite perovskites $\text{La}_{0.5}\text{Ba}_{0.5}\text{CoO}_{2.75+x}$ ($x = 0.08$ and $x = 0.16$) has been prepared by standard solid-state reaction. Neutron powder diffraction and dc-magnetization experiments were performed to investigate the crystal structure and magnetic properties. We found that both of the samples have the cubic crystal structure with space group $Pm\bar{3}m$ in all the measured temperatures. Ferromagnetic transition occurs at 160 K in $x = 0.16$ sample. For $x = 0.08$, found that the short-range ordered ferromagnetic state and a long-range ordered antiferromagnetic state coexist in low temperature.

On behalf of Atom Indonesia, I would like to thank for all of your contributions and endless support that have allowed Atom Indonesia to reach an outstanding performance for all the years. This outstanding achievement could not have been reached without great efforts and cooperation from the editors, reviewers, management personnel, authors, and readers.

Editor in Chief