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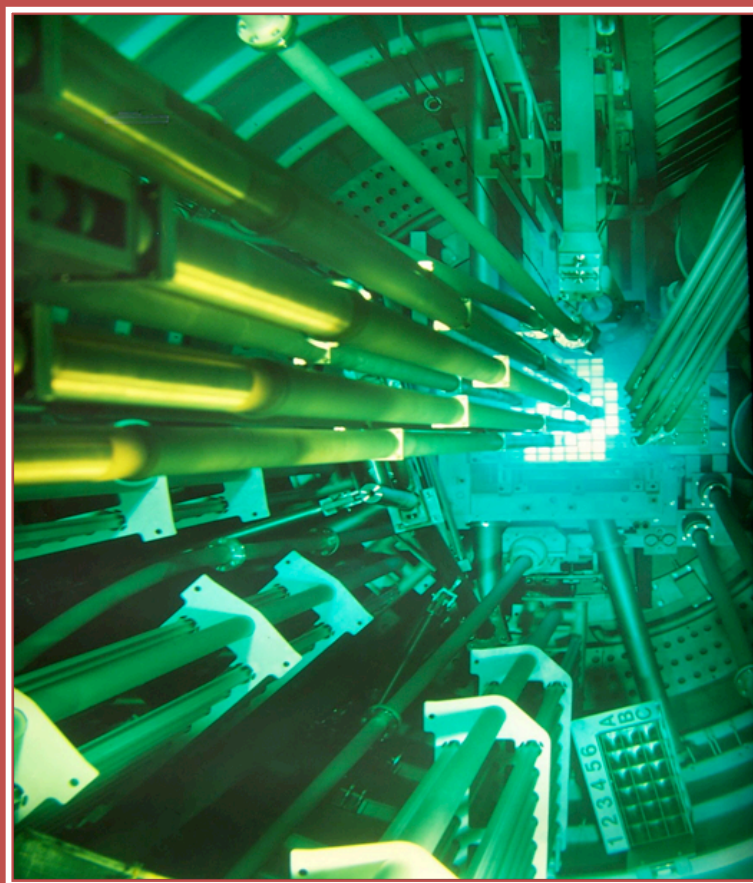
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TRI DASA MEGA**

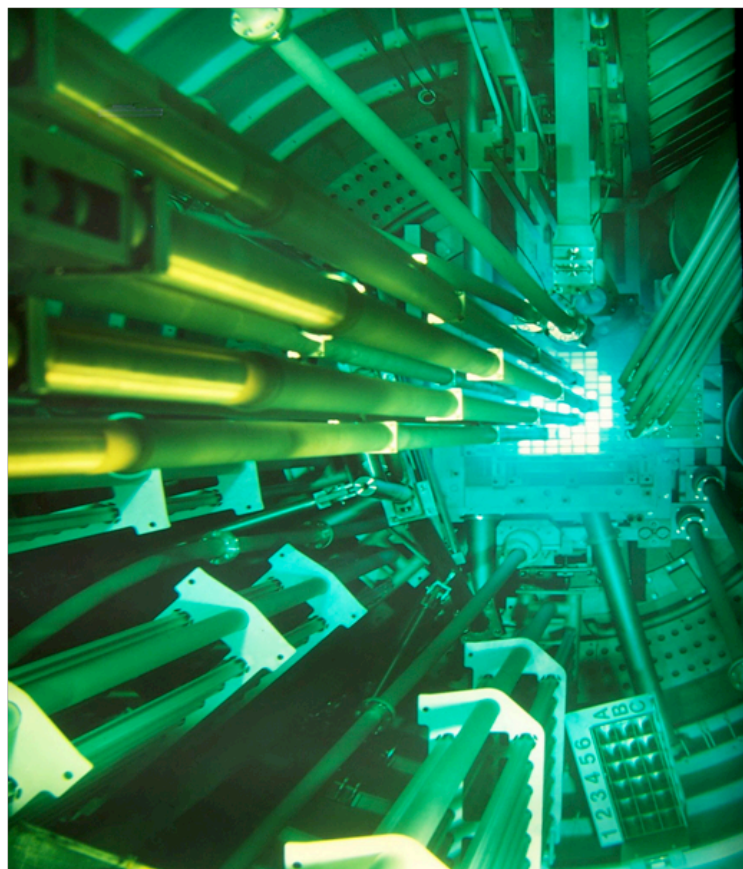
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## **PREFACE**

Dear readers, with great pleasure we provide you with the first issue of Jurnal Teknologi Reaktor Nuklir (Journal of Nuclear Reactor Technology) Tri Dasa Mega in 2019 – Vol. 21 No. 1 (February 2019). We are glad to inform you that, starting from this issue, all articles published in Tri Dasa Mega are written in English. By this, it is expected that Tri Dasa Mega becomes better known amongst the researchers from around the world, thus also increasing the impact factor of the journal. Further information on Tri Dasa Mega can be read at <http://jurnal.batan.go.id/index.php/tridam>.

Tri Dasa Mega Vol. 21 No. 1 (February 2019) contains six articles discussing various applications of nuclear reactor technology. Articles were written by authors and co-authors from various universities and institutions in Indonesia.

“The Study of Atmospheric Dispersion Model on Accident Scenario of Research Reactor G. A. Siwabessy using HotSpot Codes as a Nuclear Emergency Decision Support System” was written by Arif Yuniarto and Moh Cecep Cepi Hikmat from the Center for Informatics and Nuclear Strategic Zone Utilization, National Nuclear Energy Agency. A decision support system developed for RSG-GAS covers three important aspects, i.e. accident source term estimation, radioactive material dispersion model, and radiological impact visualization. It is found that maximum effective dose and thyroid equivalent dose of 1.030 mSv and 26 mSv for the first 7 days of exposure were reached at distance of 1 km from the release point. These values are still below the IAEA generic criteria.

“Optimization of Collimator Aperture Geometry for BNCT Kartini Research Reactor Using MCNPX” was investigated by Ramadhan Valiant Gill S. B. from the Department of Physics of Satya Wacana Christian University collaborating with Yohannes Sardjono from the Center for Science and Accelerator Technology, National Nuclear Energy Agency. Boron Neutron Capture Therapy (BNCT) is one of the promising cancer therapy modalities for killing the cancer cells without damaging healthy cells around the cancer. In this study, neutrons from Kartini research reactor is used to optimize the collimator aperture in the cylinder shape by varying its diameter. The optimization was performed using MCNPX program.

“Reliability Analysis of Primary and Purification Pumps in RSG-GAS Using Monte Carlo Simulation Approach” was studied by Entin Hartini and Hery Adrial from the Center for Nuclear Reactor Technology and Safety, National Nuclear Energy Agency, in collaboration with Santosa Pujiarta from the Center for Multipurpose Reactor, National Nuclear Energy Agency. The reliability data of the RSG-GAS components/systems used in this study are taken from the core configuration number of 81 to 95, which are collected from year 2013 to 2018. It is predicted that some important components need to be maintenance after 100 days and 225 days of working.

“Modeling of Operator’s Actions on a Nuclear Emergency Condition Using Multilevel Flow Modeling” was explored by Tulis Jojok Suryono, Sigit Santoso, and Restu Maerani from the Center for Nuclear Reactor Technology and Safety, National Nuclear Energy Agency. The purpose of this study is to model the counteractions and the consequences of the actions to the system components, which are necessary to enhance situation awareness and to reduce human errors. Multilevel flow modeling (MFM) is a chosen functional approach, which is based on cause-effect relations and consequence reasoning. It can provide a comprehensive diagnosis based on human perspective of the system objectives.

“Analysis of 3D Semi-Elliptical Crack on Reactor Pressure Vessel Wall with Load Stress and Crack Ratio” was investigated by Mike Susmikanti, Roziq Himawan, Entin Hartini, and Rokhmadi from the Center for Nuclear Reactor Technology and Safety, National Nuclear Energy Agency. The integrity of the reactor pressure vessel during the lifetime of the reactor needs to be assured to avoid structure failure. The objective of this study is to analyze and evaluate various crack ratios with some load stress in 3-D approach. The Stress Intensity Factor (SIF) and J-integral are used as crack parameters.

“Requirement Analysis of Computer-Based Instrumentation and Control System for *Reaktor Daya Eksperimental*” was evaluated by Restu Maerani, Tulis Jojok Suryono, and Muhammad Subekti from the Center for Nuclear Reactor Technology and Safety, National Nuclear Energy Agency. In this study, requirement document traceability is developed to determine which code and standards should be used to verify and validate the I&C computer-based system of the *Reaktor Daya Eksperimental* (RDE). RDE is an experimental power reactor, which is designed by the National Nuclear Energy Agency of Indonesia (BATAN) based on the design of High Temperature Reactor (HTR)-module and 10 MW High Temperature Gas-cooled Test Reactor (HTR-10).

On behalf of Chief Editor of Tri Dasa Mega, I would like to thanks to all Editors, Reviewers, Managements, Authors, and Readers for your endless supports.

Editor in Chief