

This is a Template for SAMMI-2020 Extended Abstract Preparation for both Draft and Final Papers

A. Author¹, B. Author² and C. Author¹

¹ Affiliation A, Address, Country
(E-mail: firstauthor@aaaa.bb)

² Affiliation A, Address, Country
(E-mail: secondauthor@cccc.dd)

ABSTRACT

Microsoft Word is used on Mac to prepare this template for Extended Abstract, in a paper size of A4. Please convert it into pdf and submit it to your own registered account at the SAMMI-2020 Home Page (<https://www.sammi-2020.org/>) via “Login”. Under “Author” tab, you will find your Paper ID because of your Abstract submission and “Submit Draft/Final Paper” button. Please push the button and follow the indicated instructions. **ABSTRACT is no more than 400 words.** This is an example of **ABSTRACT** writing with a fictional achievement. Severe accident may start with core degradation due to long-term loss of sufficient coolant injection into the core. To prevent further degradation of the core from occurring, it is very important to know the liquid level transient in the core by using suitable measurement methods even under extreme conditions during a severe accident. While loss of structural integrity makes it difficult to continuously monitor the liquid level in the core, we have successfully established a novel measurement method by using a newly-developed sensor. The new sensor utilizes an innovative combination of new materials and a special structure of small-diameter long flexible sheath tube. Local condition around the sensor tip during severe accident was identified by using a severe accident analysis code. The developed sensor illustrated in Fig. 1 may withstand circumferential temperatures up to 3000 K for more than 10 hours being tested by using a newly designed large crucible (size: @@@ mm x ### mm x %%% mm). A special furnace was also employed to keep the high temperature condition in the crucible. The sensor indicates an excellent performance even under extremely high radiation dose more than 900 MGy and withstands chemical reactions due to significant amounts of iodine that comes from the degraded core. In the paper, major aspects of the measurement method and the newly developed sensor will be described with a discussion on the reasons how such a novel performance was attained. Major testing methods will be explained with key characteristics, which include irradiation testing by using a high-flux test reactor. Since the developed sensor still has several problems for improvements, future R&D subjects are discussed in detail. (360 words)

KEYWORDS: Liquid Level, Measurement Method, Reactor Core, Sensor, Radiation, Chemical Reaction (Up to 6 keywords)

1. INTRODUCTION

This document provides a template for authors to format their Extended Abstract (Paper) for the OECD/NEA SAMMI-2020 Workshop.

It is recommended no less than 4 pages in the sheet size of A4 (ISO216) (210×297 mm, 8.3×11.7 inches), including tables, figures and references. The preferred pdf file size of each paper is less than 4 MB.

The text margins are to be set so that the text body is within the dimensions of 12.7 mm (0.5-inch) margins for

left and right, and 25.4 mm (1.0-inch) margins for top and bottom except for the first page where 12.7 mm (0.5-inch) margin for top.

2. BODY TEXT

The body text is basically in double-column alignment and may contain headings, subheadings, tables, figures, pictures, diagrams, formulae and other relevant information.

Section headings are in **BOLD CAPITAL 11-point**

Arial font. A number with a dot is inserted for each heading, in increasing order to the end of the Paper. Include a tab space of 10 mm from the left margin to the heading itself.

Leave 1-line margin before the section heading title and a half line margin at the beginning of each paragraph; this template is adjusted so that the paragraph and heading spacing is correctly given. It is encouraged to use page breaks to force heading title to appear on the same page as the text of that section.

Body text should be in 11-point Times New Roman font. Leave 0.2 lines before each paragraph.

When certain words are emphasized, they can be highlighted by showing **bolded**, *italicized*, or underlined, or by changing the font type and/or **SIZE**, provided these changes are confined local to draw attention of readers.

Tables and Figures (diagrams and photographs) can be included anywhere in the manuscript but after **1. INTRODUCTION** section. Figures and Tables should be numbered consecutively throughout the manuscript from 1 onwards. All figures, tables and their captions are to be centered within a column or within a page by spanning two columns. Please use section breaks to make a one-column part in a page between two double-column part. Leave one line between the body text,

Figure/Table and the caption. Ensure then Figure/Table image does not appear on a different page being separated from the caption. Ensure also that Figures/Tables are within the printable area of the page, especially after conversing the file into pdf.

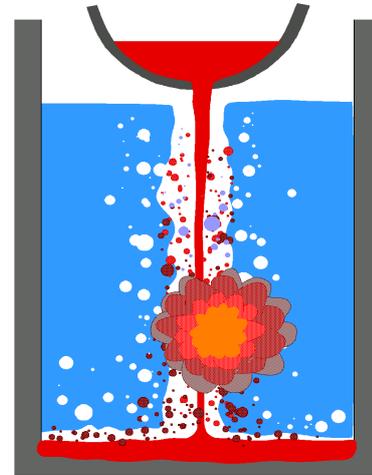


Figure 1 - A sketch of melt dropping through a water pool - **Novel reactor instruments** enabled us to capture the dynamic melt behavior during a severe accident



Figure 2 - A picture of **ROSA-I** Test Facility (1970 - 73) in former Japan Atomic Energy Research Institute (JAERI)

2.1 Subheading in a Heading Section

Sub- and sub-subheadings are recommended to provide clarity of ideas. The subheading should be in

bolded 11-point Arial font. The first letter and the first letters of the main words only are in upper case. Subheadings are numbered with a period separating the

section number and the subheading number (e.g., 2.1 and 2.2 are subheadings in section 2). The subheading title is separated from the subheading number by a tab space 5 mm from the left margin. The body of text in the subheading section is aligned and formatted identical to other sections. A single line is used to separate a subheaded section from other subheaded sections and other text in the same heading section.

2.1.1 Sub-subheading in a subheaded section

When a sub-subheading is necessary, the same principles apply as that for the subheading. The first letter of the subheading is in upper case and all other remaining letters are in lower case. The sub-subheading title is in **bolded italic 11 point Arial** font.

3. FORMULAE/EQUATIONS

For formulae, equations are numbered in their order of appearance in round brackets and are referred in the text if necessary. Equations (1) and (2) are prepared by using Equation Option of Microsoft Word as follows;

$$c = \sqrt{a^2 + b^2} \tag{1}$$

$$\langle j_g \rangle = \frac{1}{A} \int \alpha \overline{V_{zi}} dA \tag{2}$$

NOMENCLATURE section should then be provided too between **4. CONCLUSIONS** and **REFERENCES** to properly explain the meaning of each of terms and symbols used in the equations.

4. CONCLUSIONS

The pdf manuscript of Extended Abstract (Draft) should be submitted electronically to the SAMMI-2020 Home Page as noted in ABSTRACT before May 31, 2020.

We hope that the authors find this template useful and the guide easy to use. If there are any problems or

questions regarding this template, please contact the SAMMI-2020 Secretariat (info@sammi-2020.org)

Wish your success in the manuscript preparation.

5. REFERENCES

References in the text can be made to literature listed in the **REFERENCES** section, located at the end of the paper, by numbering the literature with numbers in square brackets e.g., [1]. The references are incremented in sequence of appearance in the text. Repeated references to the same literature should be made by using the same reference number [1]. The format of **REFERENCES** is as follows:

Concerning papers, Name of Authors (authors are separated by commas), “Title of paper in a couple of quotation marks with the first letter upper case and the rest lower case unless the word requires upper case”, *Journal name in italics*, Vol. number, Issue number (year) and pages [1].

Concerning conference proceedings, underline the conference name [2].

REFERENCES

[1] A. Author, B. Author, “Predictions of Measurement Instrument Local Conditions during PWR Severe Accident with a coupled CFD and Thermal-Hydraulic System Codes”, *Science and Technology of Nuclear Installations*, Volume I (2008), Article ID #####.

[2] A. Author, B. Author, and C. Author, “Development of Novel Measurement Method to Identify Dynamic Liquid Level Transient in Degraded BWR Core”, Proc. of The 27th International Conference on Nuclear Engineering (ICONE27), vol. 3, pp. 100–110, Tsukuba, Japan, May 2019.