FBNR Letter
FIXED BED NUCLEAR REACTOR – FBNR

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Dear coworkers and potential coworkers around the world,

As the number of coworkers is increasing, we are issuing a circular letter to communicate about the matters of general interest to the FBNR project. Please consider this as a personal letter to yourself. Those who are not involved in the project as yet may participate at any appropriate moment. The project has manifold aspects including scientific, technological, economical, political, and sociological.

A new era of nuclear energy is emerging. The International Atomic Energy Agency has committed itself to "Help to ensure that nuclear energy is available to contribute in fulfilling energy needs in the 21st century in a sustainable manner; and to bring together both technology holders and technology users to consider jointly the international and national actions required to achieve desired innovations in nuclear reactors and fuel cycles."- IAEA-TECDOC-1362.

The objective is to develop an innovative nuclear reactor to be inherently safe, passively cooled, small, modular, and simple in design with integrated primary circuit. Safety is achieved by design, and has reduced adverse impact on environment. It is to meet the requirements of GEN IV and IAEA-INPRO as being economic, safe, proliferation resistant and sustainable.

The FBNR may be called People's Reactor. It is intended to be developed by the peoples for the peoples of the world in the spirit of cooperation and service to humanity. It is intended to be a near term deployment project. Let us form an international consortium to develop this reactor where all members are stakeholders.

An IAEA Coordinated Research Project (CRP) includes FBNR in its program. Participate in the project.

FBNR Letter 13 November 9, 2004

Invitation to participate in the presentation of a paper on FBNR at ICONE-13.

Dear Coworkers and Potential Coworkers,

A general abstract for a joint paper on FBNR has been sent to ICONE 13. You are invited to participate in this paper indicating the content of the section that you will prepare.

Cordially Yours,
Sefidvash

ICONE 13 – The 13th International Conference on Nuclear Engineering.

Nuclear Power - Meeting the Energy Challenge for the Environment

May 16-20, 2005, Beijing, China.

Submission of Abstract: November 30, 2004
Submission of Full-Length Draft Paper for Review: January 31, 2005
Submission of Final Paper: March 31, 2005

http://www.ns.org.cn/icone2005/

The State-of-Art of the Fixed Bed Nuclear Reactor Concept.

Farhang Sefidvash, et. al. (Before submission of the paper, the other authors will be defined those who are working on the project in different countries.)

Abstract:

The Fixed Bed Nuclear Reactor (FBNR) concept is being developed under the IAEA Coordinated Research Project (CRP) on Small Reactors without On-site Refuelling. There are many institutions in different countries are participating in this project. In this paper, the state-of-art of the FBNR project is presented.

Small nuclear reactors without the need for on-site refuelling have greater simplicity, better compliance with passive safety systems, and are more adequate for countries with small electric grids and limited investment capabilities. The Fixed Bed Nuclear Reactor (FBNR) is based on the Pressurized Water Reactor (PWR) technology. FBNR is an integrated primary circuit and simple in design. It has the characteristics of being small, modular, inherently safe and passively cooled reactor with reduced adverse environmental impact.

The spherical fuel elements are fixed in the suspended core by the flow of water coolant. Any accident will signal cutting off of power to the coolant pump causing a stop in the flow. These results in making the fuel elements fall out of the reactor core by the force of gravity and become stored in the passively cooled fuel chamber under subcritical condition. Therefore, the simplicity and passive safety characteristics of the reactor in the ambit of a well dominated technology, makes it a viable option for the near future deployment. FBNR is an environmental friendly reactor concept.