

Abstract

History and Status of the TRISO-Pebblebed Technology in Germany

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Foreword

As a latecomer, I would like to thank the few people I have been able to listen to since 2005.

History

Both American and German geniuses contributed to the important invention of the fuel elements for the HTR-nuclear reactors.

Up to 1960

Farrington Daniels invented the tennis ball shaped fuel element (FE, BE) filled with gastight coated particles.

In Germany, Rudolf Schulten obtained his doctorate under Werner Heisenberg

Since Adenauer's chancellorship the use of nuclear power had been limited to civilian purposes.

From 1960 to 1990

Prof. Dr. Rudolf Schulten was initially responsible at BBC/Krupp for the planning and construction of the AVR experimental reactor at the Jülich nuclear research facility (KfA).

This led to his research and developments at Jülich. The following should be emphasized:

- The composition and form of the fuel
- The moderator
- The coolant
- The heat exchanger, material, fittings and processing
- The design
- The ball transport system

From 1990 to Fukushima

In the 1990s, Germany condemned all nuclear energy to phase-out, including TRISO technology. After the early death of Prof. Schulten in 1996, work on it ceased.

Neither the Ministry of Economic Affairs nor the Jülich Research Center were able to tell me

In 2010, the Merkel government agreed to extend the operation of the existing 17 nuclear power plants for an initial period of 10 years. The two TRISO reactors in Jülich and Hamm were not included.

From 2011 to 2021

After Fukushima in 2011, the Merkel government finally decided to finally phase out the civilian use of nuclear energy. TRISO technology was also doomed to die.

From 2021

When the HTR-PM in Shidaowan went online in December 2021, it was the long-awaited confirmation of TRISO technology, which had previously gone unnoticed in Germany. The phenomenon of the spiral of silence continues to prevail.

Meanwhile in Germany the last three LWR power plants were shut down. Fossil power generation is increasing. Incentives and subsidies for the installation of windmills and PV panels abound.

Status

Technological

For at least 10 years there has only been one chair (in Dresden) that works and teaches nuclear technology.

It is only in the last two years that the topic is mentioned occasionally and increasingly in the media or in personal conversations.

Societal

The German nuclear law in § 7 strictly forbids the use of nuclear power to generate electricity.

The promise of nuclear fusion and two Gen IV projects are discussed rather than the concrete successes of pebble bed technology.

Personal profile

7. from 2010 the only one in Germany, saving this ingenious technology from oblivion.
6. 1981 to 1984 CEO of a medium sized data center in the pharma industry
5. 1973 to 2010 self-employed management consultant– some 200 publications
4. 1970 to 1973 management consultant with Booz Allen Hamilton / PWC Strategy&
3. 1960 to 1970 Robert BOSCH / IBM Germany, France, US
2. to 1960 University Berlin and Cologne, industrial engineer, before certified locksmith craftsman
1. 1933 born in cologne Germany