

[Buccaneer Delft](#) and the [Thorium MSR Foundation](#) present:

# Thorium Molten Salt Reactors

- Thorium MSR basics
- The Salient irradiation experiment (NRG)
- On site Molten Salt Loop demonstration (Copenhagen Atomics)

**Date:** Sunday afternoon, November 19<sup>th</sup>, 14.00h -18.00h

**Location:** Buccaneer Delft, Paardenmarkt 1, 2611PA, Delft  
Local parking available; 1500m walk from the train station;  
600m walk from the tram stop “Nieuwe Plantage”

We are very pleased to present to you the two unique research projects that are actually working with thorium and molten salts, for the first time in 50 years!

Many startups are developing MSR concepts at the moment, but actually starting the experiments to build up MSR know-how, can be considered as an important mile stone in the development of thorium MSR energy!

Registration required at [info@mwenb.nl](mailto:info@mwenb.nl), (with 1 person per email).

Two foreign crews will film the event. By registering you agree to being filmed.

## Program:

**13.30h - 14.00h Reception**

14.00h - 14.30h Thorium MSR basics - Theo Wolters

14.30h - 14.40h Q&A

14.40h - 15.00h Challenges in MSR development - Sander de Groot (NRG)

15.00h - 15.20h The Salient irradiation program - Ralph Hania (NRG)

15.20h - 15.30h Q&A

**15.30h - 15.50h Break**

15.50h – 16.10h Thorium MSR in the Netherlands - Gijs Zwartsenberg (Thorium MSR Fdn)

16.10h – 16.30h LIBS measuring and MSR - Thomas Steenbergen (Copenhagen Atomics)

16.30h – 16.50h The Molten Salt Experimental Loop - Thomas Jam Peterson (CA)

16.50h – 17.00h Q&A

17.00h – 17.15h Demonstration of molten salt test loop - Thomas Jam Peterson (CA)

**17.15h – 18.00h Drinks**

# Content

## Basics – Theo Wolters

As we expect quite a few people who have not heard of thorium MSR yet, we will start with an explanation of thorium MSR energy, which could be considered as a “thorium MSR for newbies” introduction.

## Thorium MSR development – Sander de Groot (NRG)

Sander will first introduce the challenges in MSR development, where he will look at the work that needs to be done to realize MSRs.

## The Salient Irradiation Program – Ralph Hania (NRG)

Ralph will tell us all about the current SALIENT-01 experiment at NRG, which is the first actual irradiation program of thorium and molten salt in 50 years and which has led to a lot of excitement in the thorium community all over the world, and about plans for additional SALIENT irradiations

## Thorium MSR development in the Netherlands - Gijs Zwartsenberg (Thorium MSR Foundation)

Earlier this year, the three Dutch technical universities and two institutes jointly presented the Dutch Initiative on Molten Salts (DIMOS). Gijs will introduce this ambitious plan to do all necessary research for the development of the thorium MSR in the Netherlands, in only ten years!

## LIBS measuring and MSR - Thomas Steenbergen (Copenhagen Atomics)

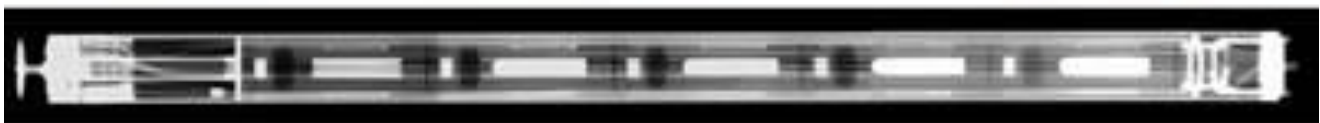
Laser Induced Breakdown Spectroscopy (LIBS) is a measuring technique that can establish the composition of a molten salt mixture at high temperature, even recognizing the isotopes of the nuclear fuel in it. This is paramount for the development of thorium MSR technology. Thomas will explain and demonstrate the measurement principle.

## The Molten Salt Experimental Loop - Thomas Jam Peterson (Copenhagen Atomics)

Copenhagen Atomics developed and built a molten salt loop for experiments with molten salts up to 900C, for testing of salts, valves, pumps, heat exchangers, metal alloys, chemical salt cleaning, measurement systems, etc.. Thomas Jam will explain how the loop will contribute to the progress of the Thorium MSR development worldwide.

## Demonstration of the functioning molten salt test loop - Thomas Jam Peterson (Copenhagen Atomics)

As our grand finale Thomas Jam will give you the world premiere of seeing a working molten salt loop, at 750C, demonstrating the possibilities for testing various aspects of the thorium MSR.



*Assembly of the SALIENT-01 experiment and an X-ray radiograph as part of quality assurance.*



*The Copenhagen Atomics Molten Salt experimental loop*