

SOTERIA brings together a total of 24 partners from 11 European countries, including the most important players in Europe in the European nuclear field:

- Research institutes
- Manufacturers and suppliers,
- Power plant operators

Based on the partners' complementary technical and scientific expertise, **SOTERIA** proposes a comprehensive research approach to contribute to the safety of today's operating nuclear power plants.

- COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES
- AMEC FOSTER WHEELER NUCLEAR UK LIMITED
- AREVA NP SAS
- AREVA GMBH
- ARTTIC
- CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT
- CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
- CENTRUM VYZKUMU REZ S.R.O.
- ELECTRICITE DE FRANCE
- HELMHOLTZ-ZENTRUM DRESDEN-ROSSENDORF EV
- INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE
- JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION
- INSTITUT JOZEF STEFAN
- KUNGLIGA TEKNISKA HOEGSKOLAN
- PAUL SCHERRER INSTITUT
- PHI-MECA ENGINEERING
- CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE FONDATION D'UTILITE PUBLIQUE
- TECNATOM S.A.
- UJV REZ, A.S.
- THE UNIVERSITY OF MANCHESTER
- UNIVERSITAT POLITECNICA DE CATALUNYA
- VATTENFALL AB
- ECOLE NATIONALE SUPERIEURE D'ARTS ET METIERS
- TEKNOLOGIAN TUTKIMUSKESKUS VTT OY

SOTERIA has received the NUGENIA label and tackles key issues of the NUGENIA roadmap, in particular related to materials performance and ageing.

NUGENIA is the Nuclear Generation II & III Association.

www.nugenia.org



CONTACTS

SOTERIA Coordinator

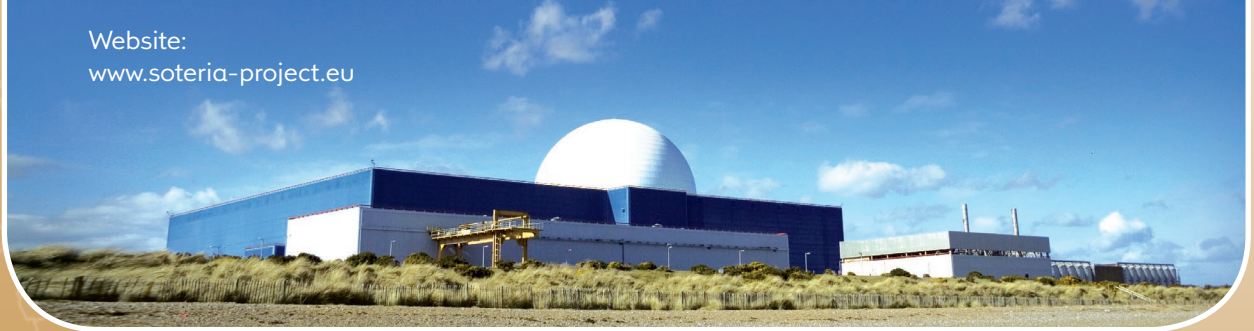
CEA
Christian ROBERTSON
christian.robertson@cea.fr

SOTERIA Office

ARTTIC
Emmanuelle Da Silva
Elisabeth Graf
soteria-arttic@eurtd.com

Website:
www.soteria-project.eu

Safe Long-Term operation
of light water reactors
based on improved
understanding
of radiation effects
in nuclear structural
materials



This project received funding from the Euratom research and training programme 2014-2018 under grant agreement n°661913

The safety of nuclear energy has come back to the frontline of public debate in recent years through events such as the tragic accident in the Fukushima Daiichi nuclear plant in 2011 or the more recent shutdown of the Doel nuclear reactor in Belgium early 2015.

It is thus a *priority* for regulators and nuclear power providers to continue operating existing nuclear power plants beyond the originally anticipated time frame.

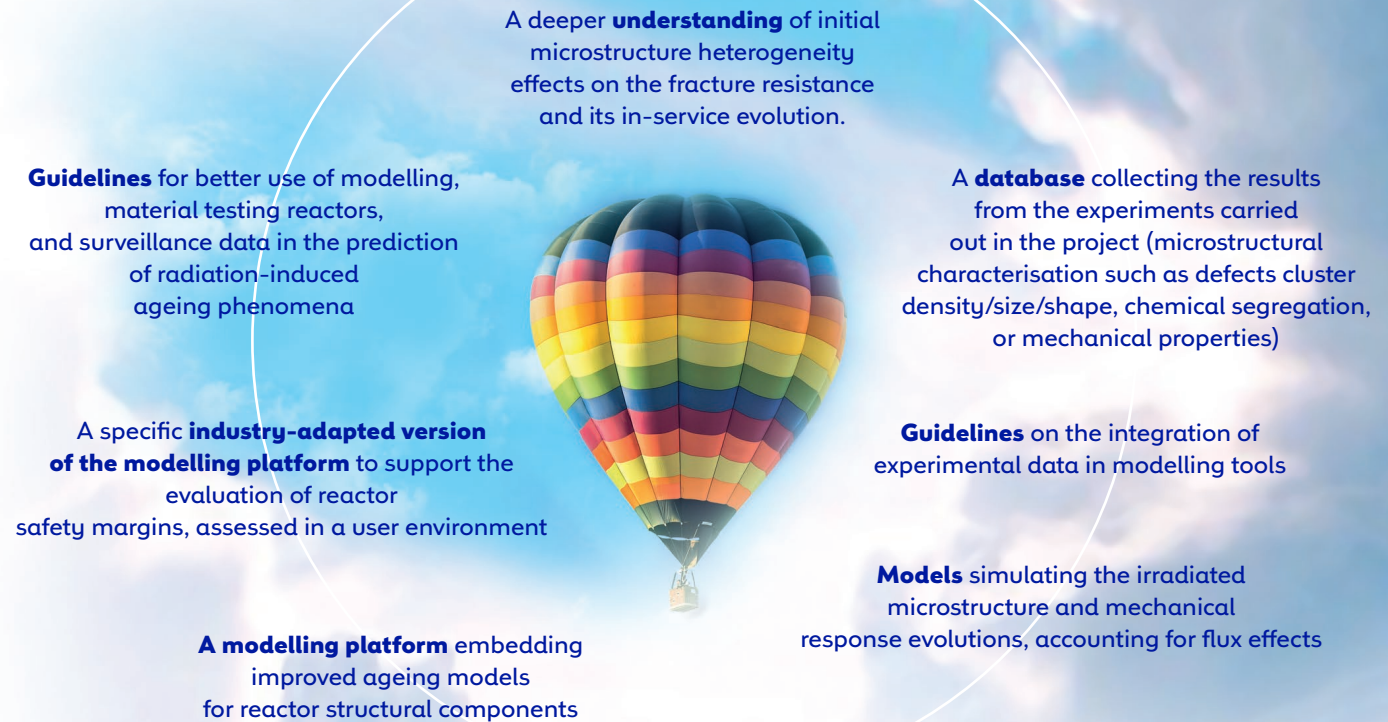
Furthermore, there is a strong *need* to guarantee a continuous safe long-term operation of existing power plants.

SOTERIA proposes a comprehensive research approach in order to achieve these ambitions by enabling nuclear power plant operators, as well as regulators, to better understand and thereby predict the ageing phenomena occurring in reactor pressure vessels and internal steels in order to ensure a safe long-term operation of existing European nuclear power plants.

SOTERIA will provide further knowledge and tools to manage the ageing of nuclear power plants by addressing 4 specific technical objectives:

- 1- Carry out experiments assessing neutron flux and fluence effects on reactor pressure vessels and internal steels in pressurised water reactors.
- 2- Evaluate the residual lifetime of reactor pressure vessels by taking into account metallurgical heterogeneities.
- 3- Assess the effect of the chemical and radiation environment on embrittlement in internals.
- 4- Develop models for the assessment of ageing mechanisms in RPV and internals and set of an integrated computer-based platform including the new modelling tools.

SOTERIA – DELIVERING INNOVATIVE AND SUBSTANTIAL RESULTS FOR ALL STAKEHOLDERS



The **SOTERIA** approach is based on an end-user perspective, taking into account operators specific problems, through:

- The set-up of an end-user group from the project start.
- The set-up of simulation-oriented experiments aiming to validate models at different scales.

