

Personnel and tasks in the SAFIR Projects in 2006

Enhanced methods for reactor analysis (EMERALD)

Kehittyneet reaktorianalyysimenetelmät

Research organisation: VTT

Project manager: Randolph Höglund, VTT

Deputy Project manager: Antti Daavittila, VTT

Task	Persons
1. Reactor physics	
1.1 Cross sections	Markku Anttila, Jaakko Leppänen
1.2 Development and validation of nodal methods	Randolph Höglund, Elja Kaloinen, Jaakko Leppänen, Anssu Ranta-aho
1.3 Enhancing VTT's capability to use advanced calculational methods	Petri Kotiluoto, Jaakko Leppänen, Frej Wasastjerna
1.4 Criticality safety, isotopic concentrations	Markku Anttila, Anssu Ranta-aho
1.5 Development of sensitivity analysis methodology	Markku Anttila, Maria Pusa
2. Reactor dynamics	
2.1 Coupling and validation of TRAB-3D and SMABRE	Anitta Hämäläinen, Jaakko Miettinen, Hanna Rätty
2.2 Application of CFDPLIM in dynamics codes	Antti Daavittila, Markku Rajamäki
2.3 Three-dimensional BWR bundle thermal hydraulics using the porous media apVTTach	Antti Daavittila, Mikko Ilvonen
2.4 Updating and completing the input manuals of TRAB-3D, HEXTRAN and TRAB	Hanna Rätty
2.5 Enhancing the capabilities of TRAB thermal hydraulics	Antti Daavittila, Markku Rajamäki, Malla Seppälä
3. Documentation, publications and results of code development	entire Project group
4. International research co-operation and training courses	entire Project group
5. Project management and information exchange	Antti Daavittila, Randolph Höglund, Hanna Rätty

High Burnup Updates in Fuel Behaviour Modelling (KORU)

Polttoaineen korkeapalammallinnuksen uudistaminen

Research organisation: VTT

Project manager: Seppo Kelppe, VTT

Deputy Project manager: Jan-Olof Stengård, VTT

Task	Persons
1. Fuel transient codes and applications	
1.1 FRAPTRAN-GENFLO, FRAPCON Codes	J.-O. Stengård, J. Miettinen
1.2 Mechanical Analyses, SCANAIR Code	A. Knuutila, K. Pietarinen
1.3 Core-wide and VTTbabilistic models	J. Rintala, J.-O. Stengård
2. High burnup models, ENIGMA Code	S. Kelppe, J. Rintala, A. Knuutila, K. Pietarinen
3. Halden analyses	J.-O. Stengård, J. Miettinen, S. Kelppe
4. Management, co-operation, and training	S. Kelppe, A. Knuutila, T. Vanttola

Integrity and life time of reactor circuits (INTELI)
Reaktoripiirin eheys ja käyttöikä

Research organisation: VTT

Project manager: Pentti Kauppinen, DrTech, VTT

Person	Org.	Task
INSEL		
Heikki Keinänen MScTech	VTT	INSEL sub-Project manager
Matti Valo MScTech	VTT	Research on ageing mechanisms
Kim Wallin DTech	VTT	Modeling of ageing
Anssi Laukkanen MScTech	VTT	Transfer of test results for structural analysis
Pekka Nevasmaa DTech	VTT	Applicability of small specimen test results
Tapio Planman MScTech	VTT	Ageing mechanisms
Pertti Aaltonen MScTech	VTT	Integrity of bimetal welds
Ulla Ehrnsten MscTech	VTT	Integrity of bimetal welds
Tom Seren	VTT	Dosimetry
Lena Hansson-Lyyra	VTT	Halden research on fuel capsule corrosion
Wade Karlsen	VTT	Research on ageing of materials
Sami Saarela	VTT	Research on ageing of materials
INPUT		
Arja Saarenheimo LicTech	VTT	INPUT sub-Project manager
Matti Sarkimo LicTech	VTT	Ultrasonic simulation
Otso Cronvall MScTech	VTT	Risk informed apVTTach to ISI
Kim Calonius MScTech	VTT	Numerical analysis
Timo Pättikangas MSc	VTT	Fluid-structure interaction analysis
Petri Kinnunen DTech	VTT	Oxide film growth on stainless steel
Timo Saario DTech	VTT	Water chemistry - corrosion interaction
Pekka Moilanen DTech	VTT	Research on hydrodynamics
Aki Toivonen Dtech	VTT	Water chemistry –corrosion interaction
INCOM		
Pertti Aaltonen MSc	VTT	INCOM sub-Project manager
Kari Lahdenperä LicTech	VTT	NDE of steamgenerator tubing
INPERF		
Kim Wallin DTech	VTT	Physics modelling of irradiation damages
Matti Valo MSc	VTT	Damage mechanisms
Pertti Aaltonen MSc	VTT	Integrity of reactor internals
INCOORD		
Pentti Kauppinen DTech	VTT	INTELI Project manager, coordination of INTELI-research

LWR oxide model for improved understanding of activity build-up and corrosion phenomena (LWROXI)
Aktiivisuuden kerääntymisen ja korroosion mallintaminen LWR-olosuhteissa

Research organisation: VTT
 Project manager: Petri Kinnunen, VTT
 Deputy Project manager: Timo Saario, VTT

Task	Persons
1. Experimental investigation of the interaction of the LWR oxides with coolant-originating species – fitting of data to adsorption and surface complexation models	Petri Kinnunen, Jarmo Lehikoinen (VTT)
2. Further development and quantification of the Mixed-Conduction Model of the oxide film emphasising surface complexation and reprecipitation	Petri Kinnunen, Martin Bojinov (Department of Physical Chemistry, University of Chemical Technology and Metallurgy, Sofia, Bulgaria)
3. Development of an integrated activity build-up model	Petri Kinnunen, Martin Bojinov, Klas Lundgren (ALARA Engineering)
4. Final reporting	Petri Kinnunen, Martin Bojinov, Klas Lundgren (ALARA Engineering)

Concrete Technological Studies Related to the Construction, Inspection and Repairation of the Nuclear Power Plant Structures (CONTECH)
Ydinvoimalarakenteiden rakentamiseen, tarkastamiseen ja korjaamiseen liittyvät betonitekniset tutkimukset

Research organisation: Technical Research Centre of Finland (VTT)
 Project manager: Liisa Salparanta, VTT

Person	Org.	Task
Kalervo Orantie, MSc Tech	VTT	Research Scientist
Pertti Pitkänen, MSc Tech	VTT	Research Scientist
Pekka Räisänen, MSc Tech	VTT	Research Scientist
Liisa Salparanta, MScTech	VTT	Project manager
Erkki Vesikari, LicTech	VTT	Research Scientist

MULTIPHYSICS - missing

Development of APROS Containment Model (TIFANY)
APROSS suojarakennusmallien kehittäminen

Research organisations: Fortum Nuclear Services Ltd (FNS) and VTT
 Project manager: Mika Harti, Fortum Nuclear Services Ltd
 Deputy Project manager: Tomi Routamo, Fortum Nuclear Services Ltd

Task 1. Validation of the APROS containment model	
1.1 Validation of the APROS containment model against ISP-42 phase F	Ari Silde, Juha Poikolainen (VTT)
1.2 Validation of the APROS containment model against IPS-47 Mistra-experiment	Ari Silde, Juha Poikolainen (VTT)
1.3 Validation of the APROS containment model against Px1.2-experiment	Mika Harti (FNS)
Task 2. Development of APROS containment and thermal hydraulic models	
2.1 Addition of pump component into the containment model	Jukka Ylijoki (VTT)
2.2 Model changes due to the validation	Ari Silde (VTT)
2.3 Interaction between phases	Markku Hänninen (VTT)

Thermal hydraulic analysis of nuclear reactors (THEA)
Termohydrauliikka-analyysit

Research organisation: VTT
 Project manager: Ismo Karppinen, VTT

Person	Org.	Task
Heikki Holmström, MScTech	VTT	Follow-up of OECD PSB-VVER and USNRC/CAMP
Risto Huhtanen, MScTech	VTT	CFD calculations in containment
Mikko Ilvonen, LicTech	VTT	NEPTUNE code testing, participation to EU/NURESIM
Pasi Inkinen, trainee	VTT	Modelling of ROSA test facility with APROS
Pasi Junninen, MScTech	VTT	APROS calculations (PKL), follow-up of OECD/PKL
Ismo Karppinen, MScTech	VTT	Project manager, follow-up of OECD/GAMA, OECD/ROSA
Jarto Niemi, MScTech	VTT	CFD calculations, model development
Juha Poikolainen, MScTech	VTT	Follow-up of Northnet
Timo Pättikangas, DrTech	VTT	Simulation of fluid structure interactions in LBLOCA

Archiving experiment data (KOETAR)
Koetulosten arkistointi

Research organisation: Lappeenranta University of Technology
 Project manager: Vesa Riikonen, Lappeenranta University of Technology
 Deputy Project manager: Markku Puustinen, Lappeenranta University of Technology

Task	Persons
1. Checking and archiving data	Vesa Riikonen, Markku Puustinen

Condensation pool experiments (POOLEX)
Lauhdutusallaskokeet

Research organisation: Lappeenranta University of Technology
 Project manager: Markku Puustinen, Lappeenranta University of Technology
 Deputy Project manager: Heikki Purhonen, Lappeenranta University of Technology

Task	Persons
1. Steam injection tests	Markku Puustinen, Heikki Purhonen, Vesa Riikonen, Antti Räsänen, Harri Partanen, Hannu Pylkkö, Ilkka Saure
2. Construction of a pool test rig including a drywell	Harri Partanen, Antti Räsänen, Hannu Pylkkö, Ilkka Saure, personnel of subcontractor
3. Project management and OECD SETH	Markku Puustinen, Heikki Purhonen

Participation in Development of European Calculation Environment (ECE)
Osallistuminen eurooppalaiseen laskentaympäristön kehitystyöhön

Research organisation: Lappeenranta University of Technology
 Project manager: Heikki Purhonen, Lappeenranta University of Technology
 Deputy Project manager: Markku Puustinen, Lappeenranta University of Technology

Task	Persons
1. Installing and testing of new simulation tools in the SALOME environment at LUT	Vesa Tanskanen, Juhani Vihavainen
2. Evaluation of SAFIR/POOLEX experiment results for NURESIM. Development of conversion tools.	Heikki Purhonen, Markku Puustinen, Vesa Riikonen, Antti Räsänen

Wall response to soft impact (WARSI)
Lentokonetörmäykset

Research organisations: VTT and Technical University of Tampere (TUT)
 Project manager: Arja Saarenheimo, VTT
 Deputy project manager: Kim Calonius, VTT

Task	Persons
1 Pre calculations for impact tests	Arja Saarenheimo TK201, Ari Aalto, Markku Tuomala, TUT
2 Post analyses for impact tests	Arja Saarenheimo, Kim Calonius TK201, Markku Tuomala and Ari Aalto, TUT
3 Jet fuel dispersion and combustion outside the building	Ari Silde, Risto Lautkaski TK501, Simo Hostikka TK201

Impact tests (IMPACT)

Lentokonetörmäyksen kokeellinen simulointi

Research organisations: VTT

Project manager: Ilkka Hakola, VTT

Task	Persons
1. Experimental apparatus	Ilkka Hakola, Leo Lapinluoma, Jouni Hietalahti, Ilkka Linna
2. Models of the impacting objects and the reaction wall	Ilkka Hakola, Auli Lastunen, Leo Lapinluoma, Heikki Lintunen, Ari Lehtonen
3. Impact tests	Ilkka Hakola, Auli Lastunen, Ilkka Linna, Juha Juntunen, Erkki Järvinen, Jukka Mäkinen, Jouni Hietalahti, Veijo Sivonen, Tapio Tähkä, Ilpo Kouhia
4. Data analysis and measurements	Jukka Mäkinen, Erkki Järvinen, Juha Kurkela, Juha Juntunen

Severe accidents and containment integrity (CAPHORN)

Research organisation: VTT

Project manager: Ilona Lindholm, VTT

Person	Org.	Task
Ilona Lindholm, MScTech	VTT	Project manager, Particle bed coolability
Stefan Holmström, LicTech	VTT	HECLA tests
Jorma Hietikko, technician	VTT	HECLA tests
Jaakko Miettinen, LicTech	VTT	Particle bed coolability
Pekka H. Pankakoski, MScTech	VTT	HECLA tests
Tuomo Sevón, MScTech	VTT	HECLA tests, follow-up of OECD/MCCI-2, MELCOR 1.8.6 model for OL1/OL2
Jouko Virta, MScTech	VTT	HECLA tests
Eveliina Takasuo, MSc	VTT	Hydrogen issues, TONUS code applications

Behaviour of fission VTTducts in air-atmosphere (FIKA)

Fissiotuotteiden käyttäytyminen ilma-atmosfäärissä

Research organisation: VTT

Project manager: Ari Auvinen, VTT

Person	Org.	Task
Ari Auvinen, MScTech	VTT	Project manager, Participation in Phebus Project, CHIP facility – design and planning
Jorma Jokiniemi, Professor	VTT	Deputy Project manager
Ulrika Backman, PhD	VTT	Ruthenium experiments
Tommi Kekki, MScTech	VTT	Radio tracer measurements – ruthenium experiments
Teemu Kärkelä, MScTech	VTT	Ruthenium experiments
Maija Lipponen, MSc	VTT	Chemical analysis - ruthenium experiment
Jussi Lyyränen, MScTech	VTT	CHIP facility – experimental work
Unto Tapper, PhD	VTT	Electron microscopy – ruthenium experiments
Riitta Zilliacus, MSc	VTT	Ruthenium experiments

**Interaction approach to development of control rooms (IDEC)
Valvomoiden käyttäjäkeskeinen suunnittelu**

Research organisation: VTT
Project manager: Olli Ventä, VTT
Deputy project manager: Leena Norros, VTT

	Org.	Task
Olli Ventä , PhD Tech	VTT	Project manager
Leena Norros, PhD	VTT	Performance evaluation for system usability
Paula Savioja MScTech	VTT	Interface evaluation for systems usability
Jari Laarni PhD	VTT	Performance and interface evaluation for systems usability
Leena Salo, MscTech	VTT	Interface evaluation, user studies

Software qualification – error types and error management in software life-cycle (QETES)

Research organisations: VTT and FNS
Project manager: Hannu Harju, VTT

	Org.	Task
Hannu Harju	VTT	Senior Research Scientist, Lic. Tech, Project manager, VTT
Urho Pulkkinen,	VTT	Research professor
Jan-Erik Holmberg	VTT	Senior Research Scientist
Jukka Ranta	VTT	Research Scientist
Martti Välisuo	FNS	

**Organisational culture and management of change (CulMa)
Organisaatiokulttuuri ja muutoksen hallinta ydinvoimalaitoksissa**

Research organisation: VTT
Project manager: Teemu Reiman, VTT

Task	Persons
1. Development of working practices and management of change	Teemu Reiman, Pia Oedewald, Reetta Kurtti
2. Assessment of Organisational Culture	Teemu Reiman, Pia Oedewald, Jari Kettunen, Björn Wahlström
3. NKS/OrRe	Teemu Reiman, Pia Oedewald, Björn Wahlström

Disseminating tacit knowledge in organizations (TIMANTTI)
Kokemusperäisen tietämyksen jakaminen organisaatiossa

Research organisation: Helsinki University of Technology

Project manager: Tanja Kuronen-Mattila, Helsinki University of Technology

Deputy Project manager: Katri Säämänen, Helsinki University of Technology

Task	Persons
1. Orientation and material study	Tanja Kuronen-Mattila, Katri Säämänen
2. Case Study - Loviisa Control Room	
2.1 Data Gathering - Observation	Tanja Kuronen-Mattila, Katri Säämänen
2.2 Data Gathering - Interviews	Tanja Kuronen-Mattila, Katri Säämänen
2.3 Data Analysis, Process Modelling and Developing	Katri Säämänen, Tanja Kuronen-Mattila
3. Reporting and Publishing	Tanja Kuronen-Mattila, Katri Säämänen, Eila Järvenpää
4. Project management	Tanja Kuronen-Mattila

Potential of fire spread (POTFIS)
Palon leviämisen mahdollisuus

Research organisation: VTT

Project manager: Olavi Keski-Rahkonen, VTT

Deputy Project manager: Johan Mangs, VTT

Task	Persons
1. Influence of smoke and heat on equipment	
1.2 Flame spread experiments on cables	Johan Mangs, Olavi Keski-Rahkonen
2. Fire spread	
2.1 Probabilistic fire development in safety relevant spaces	Simo Hostikka, Timo Korhonen, Olavi Keski-Rahkonen
3. Active and operative fire protection	
3.1 Reliability of fire detection in different NPP environments	Olavi Keski-Rahkonen

Principles and Practices of Risk-Informed Safety Management (PPRISMA)
Riskitietoisen turvallisuudenhallinnan periaatteet ja käytännöt

Research organisation: VTT

Project manager: Jan-Erik Holmberg, VTT

Task	Persons
1 Risk-informed decision making	
1.1 Maintenance and operability strategies	Kari Laakso, Tony Rosqvist, Ilkka Männistö
1.2 Risk-informed ways of management of fire situations	Kristiina Hukki, Jan-Erik Holmberg
1.3 Risk-informed categorisation	Ilkka Männistö, Kaisa Simola
2 Methods for risk assessment	
2.1 Human reliability analysis data	Jan-Erik Holmberg
2.2 Reliability of computer-based systems	Ilkka Karanta, Urho Pulkkinen, Björn Wahlström, Atte Helminen
2.3 Reliability analysis of long-term missions	Ilkka Männistö, Jan-Erik Holmberg
3 Project management, co-operation and information exchange	
3.1 Project management and information exchange	Jan-Erik Holmberg, Kari Laakso, Urho Pulkkinen, Kaisa Simola, Olli Ventä

Assessment Smart Device Software (ASDeS)

MikroVTTsessoriohjattujen laitteiden turvallisuusarviointi

Research organisation: VTT

Project manager: Urho Pulkkinen

Task	Persons
2.1 Description of safety case apVTTach	VTT: Urho Pulkkinen, Jan-Erik Holmberg, Hannu Harju Adelard LLP : Sofia Guerra, Robin Bloomfield, Daniel Sheridan
2.3 Description of assessments (2006)	VTT: Urho Pulkkinen, Jan-Erik Holmberg, Hannu Harju Adelard LLP : Sofia Guerra, Robin Bloomfield, Daniel Sheridan
3.1 Workshop with external participants to discuss VTTposed apVTTach (2006)	VTT: Urho Pulkkinen, Jan-Erik Holmberg, Hannu Harju Adelard LLP : Sofia Guerra, Robin Bloomfield, Daniel Sheridan
3.2 Consolidated VTTmising framework for the assessment of smart devices (2006)	VTT: Urho Pulkkinen, Jan-Erik Holmberg, Hannu Harju Adelard LLP : Sofia Guerra, Robin Bloomfield, Daniel Sheridan

Administration and information of the research programme (SAHA)
Tutkimusohjelman hallinto ja tiedotus

Research organisation: VTT

Project manager: Eija Karita Puska, VTT

Deputy Project manager: Hanna Rätty, VTT

Task	Persons
1 Administration	Eija Karita Puska, Hanna Rätty
2 EU FP6 activities	Eija Karita Puska