

# Workshop «State of the Art - Procedures currently applied to the integrity assessment of RPVs subjected to PTS loading»

Paul Scherrer Institute  
Villigen, Switzerland  
30 – 31 March 2022

## AGENDA

APAL WORKSHOP DAY 1		
Date 30 <sup>th</sup> March		
Time	Topic	Person in charge
8:45 – 9:15	Welcome coffee and registration	
9:15 – 9:30	Opening and introduction of APAL	Vladislav Pištora (UJV)
Introduction to PTS		Chair: Vladislav Pištora (UJV)
9:30 – 10:15	Brief introduction to PTS	Vladislav Pištora
10:15 – 10:40	RPV material properties and degradation I	Hieronimus Hein
10:40 - 11:00	RPV material properties and degradation II	Maksym Zarazovskii
11:00 – 11:15	<b>Coffee break</b>	
11:15 – 11:45	Good practice in ageing management for NPPs	Miroslav Žamboch
11:45 – 12:15	Ageing management focused on RPV materials	Ralph Döring
12:15 – 13:30	Lunch	
State-of-the-art for the thermal-hydraulic (TH) analysis		Chair: Ivor Clifford (PSI)
13:30 - 14:15	Thermal-hydraulic phenomena relevant for PTS	Pavel Král & Ladislav Vyskočil
14:15 - 15:00	Uncertainties in thermal-hydraulics	Richard Trewin
15:00 - 15:15	<b>Coffee break</b>	
15:15 - 16:00	State-of-the-art for the thermal-hydraulic (TH) analysis	Ivor Clifford
Identification of further LTO improvements having an impact on PTS and selection for assessment		Chair: Pavel Král (UJV)
16:00 – 16:45	LTO improvements for NPP	Pavel Král & Markku Puustinen
End of the session		

## APAL WORKSHOP DAY 2

### Date 31<sup>st</sup> March

Time	Topic	Person in charge
State-of-the-art for weld residual stress (WRS)		Chair: Szabolcs Szávai (BZN)
9:15 – 10:00	State-of-the-art for weld residual stress – APAL's review	Szabolcs Szávai
10:00 – 10:30	Weld residual stress in integrity assessment	Daniel Mångård
10:30 – 10:45	<b>Coffee break</b>	
State-of-the-art for warm pre-stress (WPS)		Chair: Maksym Zarazovskii (IPP)
10:45 - 11:15	Warm pre-stress in integrity assessment	Maksym Zarazovskii
11:15 – 12:00	State-of-the-art for warm pre-stress – APAL's review	Maksym Zarazovskii
12:00 – 13:00	Lunch	
State-of-the-art of probabilistic PTS analysis and relevant statistical tools		Chair: Ralf Tiete (Framatome)
13:00 - 13:30	Probabilistic PTS – Brief introduction	Richard Bass
13:30 - 14:00	Overview of FAVOR code	Richard Bass
14:00 – 14:40	State-of-the-art of probabilistic PTS analysis – APAL's review	Ralf Tiete
14:40 - 14:55	<b>Coffee break</b>	
14:55 - 15:35	Probabilistic fracture mechanics analysis and statistical models	Peter Dillström
15:35 – 16:15	Uncertainty in probabilistic fracture mechanics and margin assessment	Klaus Heckmann
End of the session		
16:30 – 18:00	Tour Swiss Light Source SLS	

**From BADEN to PSI WEST**, you have to combine train and bus (Express)

TRAIN S19/S27: **From Baden to Siggental-W, Bahnhof + BUS 357 From Siggental-W, Bahnhof to PSI West**

Baden ab	Train S27	07 24	Train S27	07 34	Train S27	07 54	Train S27	08 24	Train S27	08 54
Siggental-Würenlingen an		07 32		07 43		08 02		08 32		09 02
<b>Siggental-W., Bahnhof</b>	Train S27	07 34	Train S27	07 48	Train S27	08 04	Train S27	08 34	Train S27	09 04
Würenlingen, Bären										09 07
Würenlingen, Post										09 09
Würenlingen, Altersheim										
Villigen, PSI Ost	Bus 357	07 40	Bus 357	07 54	Bus 357	08 10	Bus 357	08 40	Bus 357	09 13
<b>Villigen, PSI West</b>	Bus 357	07 42	Bus 357	07 56	Bus 357	08 12	Bus 357	08 42	Bus 357	09 15

**From PSI WEST to BADEN**, you have to combine bus (Express) and train

BUS 357 **From PSI West to Siggental-W, Bahnhof + TRAIN S19/S27 From Siggental-W, Bahnhof to Baden**

<b>Villigen, PSI West</b>	Bus 357	16 43	Bus 357	16 59	Bus 357	17 13	Bus 357	17 43	Bus 357	17 59	Bus 357	18 13
Villigen, PSI Ost		16 44		17 00		17 14		17 44		18 00		18 14
Würenlingen, Altersheim												
Würenlingen, Post												
Würenlingen, Bären												
<b>Siggental-W., Bahnhof</b>	Train S27	16 49	Train S19	17 05	Train S27	17 19	Train S27	17 49	Train S19	18 05	Train S27	18 19
Siggental-Würenlingen ab		16 53		17 12		17 23		17 53		18 12		18 23
Baden an		17 03		17 22		17 33		18 03		18 22		18 33

**From BRUGG to PSI WEST**, you have a direct bus (Express)

<b>Brugg AG, Bahnhof/Zentrum</b>	Bus 376	07 34	Bus 376	08 04	Bus 376	08 34	Bus 376	09 04
Lauffohr, Platte								
Lauffohr, Dorf								
Stilli, Villigerstrasse								
Villigen, Husberg								
Villigen, PSI West		07 45		08 15		08 45		09 15
Villigen, PSI Ost		07 47		08 17		08 47		09 17

**From PSI WEST to BRUGG**, you have a direct bus (Express)

Villigen, PSI Ost	Bus 376	17 07	Bus 376	17 37	Bus 376	18 07
Villigen, PSI West		17 09		17 39		18 09
Villigen, Husberg						
Stilli, Villigerstrasse						
Lauffohr, Dorf						
Lauffohr, Platte						
Brugg AG, Eisi						
<b>Brugg AG, Bahnhof/Zentrum</b>		17 25		17 55		18 25