Sfen

ICAPP 2025

SEPT 17-19

International Congress on Advances in Nuclear Power Plants

Innovations to Triple Nuclear Energy Capacity by 2050

ANTIPOLIS CONVENTION CENTER
ANTIBES-JUAN-LES-PINS, FRANCE

PROGRAM

Updated - September 14, 2025

Organizer

Sfen

Sponsors

framatome · i-SMR Innovative Small Modular Reactor · cea · EDF

Partners

ANS American Nuclear Society · Atomic Energy Society of Japan · KNS Korean Nuclear Society · ENS European Nuclear Society

The International Congress on Advances in Nuclear Power Plants (ICAPP) **provides a forum** for leaders of the nuclear industry, researchers, academics, **to exchange information**, **present results** from their work, **review** the state of the industry, and **discuss future directions and needs** for the deployment of new nuclear power plant systems around the world.
ICAPP 2025 will place **special focus on innovations to triple nuclear energy capacity**.
At COP28 in Dubai, more than 20 heads of governments pledged to triple nuclear energy capacity by 2050. Achieving this goal will require a combination of the long-term operation of existing reactors, the construction of large reactors and the development of SMRs including advanced technologies for new applications. **Major innovations will be needed** across all these areas.

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TECHNICAL PROGRAM CHAIRS:
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S. Benhamadouche, EDF [T5]
S. Cathalau, CEA [T9]
P. -M. Demy, Framatome [T4]
X. Dubois, EDF [T9]
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C. Evans, Orano [T7]
B. Farges, Framatome [T5]
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D. Pointer, ORNL
C. Stanek, LANL
N. Stauff, ANL
T. Taiwo, ANL

TOPICS:
T1. Water Cooled Reactor Programs & Related SMR Developments
T2. Advances in Gen-IV and Fusion Technologies
T3. New Applications of Advanced Reactors
T4. Reactor Physics
T5. Thermal Hydraulics
T6. Fuels, Materials and Structures
T7. Fuel Cycle and Waste Management
T8. Operation, Performance and Reliability Management
T9. Capacity Building for New Projects and Tech-Economics of Nuclear Reactors

PROGRAM OVERVIEW

WEDNESDAY

Convention center opening
Check-in

Welcome Address

Opening speeches
Tripling Nuclear Energy Capacity by 2050 | Objectives & Strategy

Panel
Tripling Nuclear Energy Capacity by 2050 | Moving Forward

ICAPP 2025 General Information

Welcome Cocktail

Parallel Technical Sessions
S1.1 | S2.1 | S4.1 | S5.1 | S8.1

Parallel Technical Sessions
S1.2 | S2.2 | S5.2 | S7.1 | S9.1

THURSDAY

Convention center opening
Check-in

Panel
Closing the Nuclear Fuel Cycle | The Strategic Approaches

Parallel Technical Sessions
S2.3 | S5.3 | S6.1 | S7.2 | S8.2

Parallel Technical Sessions
S2.4 | S3.1+2 | S5.4 | S8.3 | S9.2

Parallel Technical Sessions
S4.2 | S5.5 | S6.2 | S7.3 | S9.3

Conference Party

FRIDAY

Convention center opening
Check-in

keynote
Adaptation to Climate Change

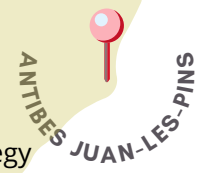
Panel
Nuclear Heat Applications

Parallel Technical Sessions
S2.5 | S3.3 | S4.3 | S5.6 | S7.4

End of the conference

- Plenary Speeches Panels & Keynote
- Technical Presentations: Oral & Posters
- Attendees from all over the World
- Networking and Social Events

S1.1 Accidents & Severe Accidents Mitigation
S1.2 Innovative Reactor Designs
S2.1 Innovative Reactors Overview
S2.2 Fusion, Lead & Molten Salt Reactors
S2.3 Molten Salt Reactors
S2.4 Sodium Fast Reactors
S2.5 Gaz Reactors & Reactor Safety
S3.1 Nuclear Energy for Low Carbon Mobility
S3.2 Flexibility in the Service of Techno-Economics
S3.3 Nuclear Energy for the Production of Low-Carbon Synthesis Molecules
S4.1 Nuclear Physics - Methods and Applications on PWR
S4.2 Nuclear Physics - Applications on Advanced Reactors
S4.3 IA & Machine Learning
S5.1 Experimental Methods & Instrumentation
S5.2 Heat Exchangers
S5.3 Computational (multi) Fluid Dynamics
S5.4 V&V and Evaluation of Thermal Hydraulics Codes
S5.5 Uncertainty Quantification and Machine Learning
S5.6 Multiscale and Multiphysics
S6.1 Concrete, Structure, Technology
S6.2 Fuel Fabrication and Performance
S7.1 SMR/AMR
S7.2 Scenario/Strategy
S7.3 Circular Economy - Valorisation of Materials
S7.4 Waste Management & Decommissioning
S8.1 High Performance Operation
S8.2 Maintenance & LTO
S8.3 Safety
S9.1 Construction Methods
S9.2 Training, Climate Change, Strategy & planning
S9.3 Techno-Economy and Costs



CONFERENCE VENUE

ANTIPOLIS CONVENTION CENTER - Level 3
60 chemin des sables - 06160 Antibes

Login **ANTIPOLIS**
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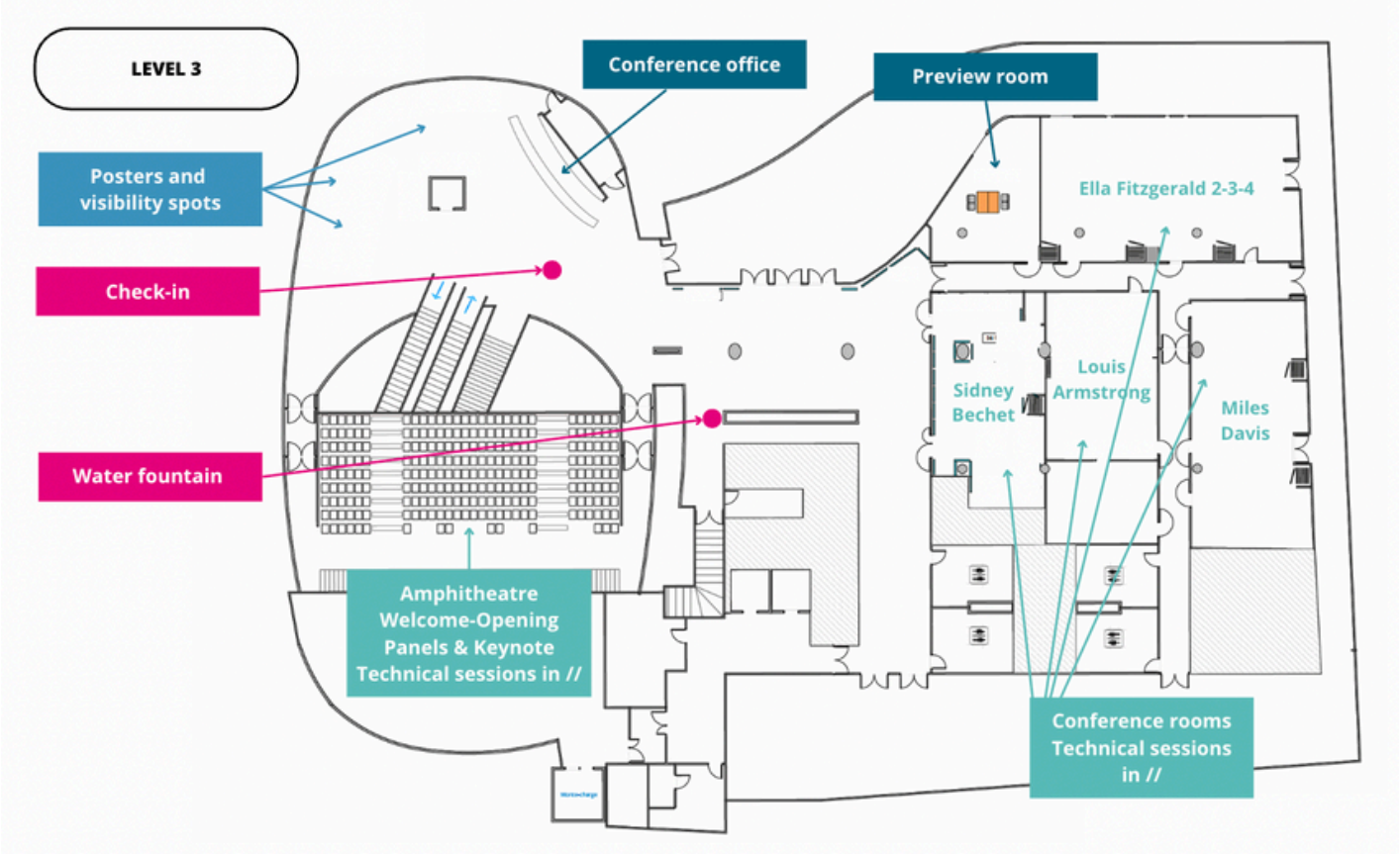
FLOOR PLAN



Wednesday 17 September

08:00 - 09:45
Convention Center Opening - Check-in & Welcome Coffee

09:45 - 10:00
WELCOME ADDRESS | General Chairs

Valérie Faudon, Sfen - Executive Director
Pascal Charles, EDF - VP, R&D Generation & Engineering

10:00 - 11:15
OPENING SPEECHES | Tripling Nuclear Energy Capacity by 2050 - Objectives & Strategy

CHAIR: Valérie faudon, Sfen - Executive Director

SPEAKERS:
Bernard Fontana, EDF - Chairman & CEO
Baozhi Chen, CNEC - Chairman of the Board
Christopher Levesque, TerraPower - President & CEO
Haijun Liu, CGN Power - Vice President

11:15 - 12:15
PANEL | Tripling Nuclear Energy Capacity by 2050 - Moving Forward

MODERATOR: Jacopo Buongiorno, MIT - Professor, Nuclear Science & Engineering - Director, CANES

PANELISTS:
Vincent Berger, High Commissioner for Atomic Energy for the French Government
Liuyan Fan, CNEC - Assistant General Manager
Dong-Wook Jerng, Chung-Ang University - Professor, School of Energy Systems Engineering
Qing Mao, CNPEC- Chief Engineer
Craig Piercy, ANS - Executive Director & CEO

12:15 - 12:30
ICAPP 2025 GENERAL INFORMATION | Technical Program Chairs

Patrick Blaise, Framatome - Senior Expert in Reactor Physics
François Willaime, CEA - Scientific Lead for Materials, Simulations & Basic Research

12:30 - 14:00
WELCOME RECEPTION

Sponsored by framatome and i-SMR Innovative Small Modular Reactor

14:00 - 15:40
S1.1 WATER COOLED REACTOR PROGRAMS & RELATED SMR DEVELOPMENTS | Accidents and Severe Accidents Mitigation

064 - Fabrication of a series of Fukushima Daiichi fuel debris simulants
C. Journeau (CEA, France)

065 - MELCOR Analysis of the NORDIC BWR Pressure Suppression Pool during LOCA
G. Acharya (KTH Royal Institute of Technology, Sweden)

176 - Comparative Study of the Phenomena Occurring in the Lower Head after a Severe Accident between Large Pressurized Water Reactors and Small Modular Reactors
C. Liegard (CEA Cadarache, France)

233 - Thermal-Hydraulic and Aerosol Behavior Analysis of the VANAM-M3 Experiment Using the CINEMA Code
Y.H. Kim (Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea)

237 - Considerations of Passive Safety Injection System Modeling using MARS-KS
H. Choi (FNC Technology Co., Ltd., Republic of Korea)

14:00 - 16:00

S2.1 ADVANCES IN GEN-IV TECHNOLOGIES | Innovative Reactors Overview

141 - CEA R&D program on GenIV reactors
J.C. Garnier (CEA Cadarache, France)

134 - SFR1000 General Overview - A strong technical heritage to design the future SFR Fleet
A. Dauphin (Framatome, France)

193 - OTRERA, a compact, modular, flexible, maneuverable and economic design SMR
R. Dupraz (OTRERA NEW ENERGY, France)

194 - ESFR-SIMPLE: towards ESFR-SMR system design
P. Servell (EDF, France)

196 - Thorizon's cartridge core molten salt reactor
S. De Groot (Thorizon, Netherlands)

254 - Design Theory and AI applied to SMR technology forecasting
G. Bersano (IKOS CONSULTING, France)

14:00 - 16:00

S4.1 REACTOR PHYSICS | Nuclear Physics - Methods and Applications on PWR

191 - Reactivity Impact of Control Rod Depletion in Boron-free Reactors
E. Girardi (EDF R&D, France)

055 - Modeling the Equilibrium Cycle of the PRATIC SMR Core Benchmark Using the CMS5 Code System
R. Vuiart (Autorité de Sûreté Nucléaire et de Radioprotection (ASNR), France)

227 - Augmentation of Burn-up Matrix for Tracking of Neutron Balance during Depletion Calculations
A. Rossi (Paul Scherrer Institute, Switzerland)

057 - Improving Depletion Calculation Accuracy in KARMA Using High-Order Predictor-Corrector Methods
M. Woo (KEPCO Nuclear Fuel Co., Republic of Korea)

102 - Adjoint-Weighted Kinetics Parameter Estimation in Time-Dependent Monte Carlo Neutron Transport Calculations
J.Y. Kwon (Seoul National University (SNU), Gwanak Campus, Republic of Korea)

275 - Covariance Adjustment for Nuclear Data using Qc Coverage Quantification Metric
U. Mertyurek (Oak Ridge National Laboratory, United States of America)

14:00 - 16:00

S5.1 THERMAL HYDRAULICS | Experimental Methods & Instrumentation

076 - Fundamental Study on Ultrasonic Receiver Sensors Based on Light Deflection Phenomena
H. Kikura (Laboratory for Zero-Carbon Energy, Institute of Integrated Research, Institute of Science Tokyo, Japan)

197 - Can we cure incomplete PIV measurements in space and time?
R. Kapulla (Paul Scherrer Institut (PSI), Switzerland)

027 - Investigation of macro layer thickness in nucleate pool boiling by the spectral interferometric laser displacement meter
Y. Umehara (Kyushu University - Ito Campus, Japan)

235 - Experimental Investigation of Core Flow Behavior in a Pressur-ized Water Reactor
K. Kim (Korea Atomic Energy Research Institute, Republic of Korea)

218 - An Experimental Study on the Suppression Effect of Steam Explo-sion using Dilute Hydrogel Aqueous Solutions
K.H. Bang (Tetras Co., Republic of Korea)

138 - Two-Phase Natural Convection in Sloped Core Catcher Channel
B. Lee (Korea Atomic Energy Research Institute, Republic of Korea)

14:00 - 15:40

S8.1 OPERATION, PERFORMANCE & RELIABILITY MANAGEMENT | High Performance Operation

293 - Flexible operation of French nuclear fleet: a response to the challenges the electricity system faces
S. Feutry (EDF, France)

131 - Artificial Intelligence (AI) applied to instrumentation compliance in simulators and control rooms
C. Herrero Moriana (Westinghouse, Spain)

086 - The OAPS solution: a real-time predictive system for flexible PWR operation
G. Dupré (Framatome, France)

300 - The use of the EPRI plant modernization process to apply AI tools in nuclear power plants
R. Austin (EPRI, United States of America)

058 - MOX and UOx Fuel Multi Recycling in Pressurized Water Reactors
H. Billat (EDF, France)

16:00 - 16:30
COFFEE BREAK

16:30 - 17:50
S1.2 WATER COOLED REACTOR PROGRAMS & RELATED SMR DEVELOPMENTS | Innovative Reactor Designs

072 - Preliminary Core Design of the 400 °C Class Super FR using Cr Coated Zircalloy Cladded Fuel
T. Muramoto (Waseda University, Japan)

091 - Development Status of Innovative SMR (i-SMR)
T. Park (Innovative Small Modular Reactor Development Agency, Republic of Korea)

270 - AP300™ SMR Design Strategy and Objectives
A. Talarowska (Westinghouse Electric, Poland)

098 - Study on Laws and Regulations on Submission and Approval of Small Modular Reactor in China
X. Yan (China Institute of Nuclear Industry Strategy, China)

16:30 - 18:30
S2.2 ADVANCES IN GEN-IV AND FUSION TECHNOLOGIES | Fusion, Lead & Molten Salt Reactors

242 - Westinghouse's activities and capabilities in support of Fusion technology development, with focus on the ITER experience
S. Roche (Westinghouse Electric, France)

202 - Standardisation of innovative materials for fusion mechanical components
C. Petesch (CEA Saclay, France)

037 - Westinghouse Test Facilities for Liquid Lead-based Technologies
G. Tremblay (Westinghouse Electrique, France)

155 - Analysis of Fluid Heat Transfer Behavior of LBE under Different Turbulence Models
Z. Hu (Harbin Engineering University, China)

186 - Enhancement of Neutronic Performances of Ultra-Long-Life MMLFR Core through Power Flattening
S. Lee (Hanyang University, Republic of Korea)

181 - Numerical Analysis of Molten Salt Release During a Spill Accident in Molten Salt Reactor
J. Bae (Korea Atomic Energy Research Institute, Republic of Korea)

16:30 - 17:50
S5.2 THERMAL HYDRAULICS | Heat Exchangers

265 - Comparative Analysis of Helical Coil Heat Exchanger Configurations in a Passive Molten Salt Fast Reactor: Tube-Side and Shell-Side Fuel Salt Allocation
J. Im (Hanyang University, Republic of Korea)

185 - Optimizaiton of system-integrated helical shell and tube heat exchanger of Passive Molten salt Fast Reactor using GAMMA+ code
D. Lee (Hanyang University, Republic of Korea)

217 - Simulation study of the operating characteristics of heat exchang-ers for printed circuit boards
H. Xu (Harbin Engineering University, China)

111 - Numerical analysis of different finned tube designs in air heat ex-changers for passive residual heat removal systems
F. Guangming (Harbin Engineering University, China)

16:30 - 17:50

S7.1 FUEL CYCLE AND WASTE MANAGEMENT | SMR/AMR

301 - Advanced Modular reactors' Fuels and their supply chains
G. Vaast (Sfen-Nuclear Fuel Cycle Technical Section, France)

157 - An overview of Orano's solutions in the fuel cycle to enable the SMR/AMR deployment
C. Evans (Orano, France)

115 - VNS Modular Detritiation System (MDS)
J. Robert (Veolia Nuclear Solutions, France)

214 - SMR-AMR_Front-end and Back end transport and interim storage_Solutions and challenges
C. Alistan (Orano NPS, France)

16:30 - 18:10

S9.1 CAPACITY BUILDING FOR NEW PROJECTS AND TECH-ECONOMICS OF NUCLEAR REACTORS | Construction Methods

093 - Modularization in Westinghouse Nuclear Power Projects
P. Sanchez Hernandez (Westinghouse Electric, Spain)

294 - HPC Innovations in Main Civil Works – Megalift Reinforcement Modular Cages and Precast Modular Concrete Boxes
X. Chen (EDF Energy NNB - Hinkley Point C, United Kingdom)

219 - AP300™ SMR MEPI Modules: Advancing Ease of Construction
K. Bąk (Westinghouse Electric, Poland)

177 - Use of Steel-Concrete Structures to optimize the construction planning
S. Rallo-Brémond (EDF, France)

142 - Structural Modules in the Westinghouse AP1000 Reactor and the AP300 SMR
P. Sanchez Hernandez (Westinghouse Electric, Spain)

Thursday 18 September

08:00 - 09:00

Convention Center Opening - Check-in

09:00 - 10:15

PANEL | Closing the Nuclear Fuel Cycle - The Strategic Approaches

MODERATOR: Cécile Evans, Orano - Marketing Director - Back-End & New Nuclear

PANELISTS:
Hyo-on Nam, KAERI - Head of KAERI's Nuclear Cycle Technology Strategy Office
Jacques Peythieu, Orano - SEVP Customer & Strategy, Orano Executive Committe Member
Jennifer Shafer, ARPA-E - Associate Director of Technology
Kenji Takeshita, Institute of Science Tokyo -Professor Emeritus

10:15 - 10:30

TRANSITION

10:30 - 12:30

S2.3 ADVANCES IN GEN-IV AND FUSION TECHNOLOGIES | Molten Salt Reactors

229 - Design capabilities for MSR Decay Heat Removal systems
E. Martin-Lopez (CEA, France)

256 - Sensitivity analysis on the pre-design of a MSR primary heat exchanger
B. Forno (CEA Cadarache, France)

109 - Analysis of Wielenga Innovation Salt Tank Reactor (WISTR)
T. Wielenga (Wielenga Innovation Foundation, Inc, United States of America)

050 - Comparison of Load-Following Performance in an MSR-Based sCO2 Brayton Cycle with Different Coolant Salts
J.M. Baek (Korea Advanced Institute of Science & Technology (KAIST), Republic of Korea)

074 - Preliminary Design and Performance Evaluation of Helium Brayton Cycle for MSR
S. Choi (Korea Advanced Institute of Science & Technology (KAIST), Republic of Korea)

028 - Passive Reactivity Control System to Achieve Downsizing and Improve Safety for Small Modular Reactor
S. Park (Hyundai Engineering & Construction, Republic of Korea)

10:30 - 12:30
S5.3 THERMAL HYDRAULICS | Computational (Multi) Fluid Dynamics

152 - CFD analysis of hydrogen diffusion behavior in the BWR building
S. Yoshida (Hitachi GE Vernova Nuclear Energy, Ltd., Japan)

029 - Wall-Modeled Large Eddy Simulation of the flow through a 1300 MWe PWR Control Rod Guide Assembly at a realistic Reynolds number
S. Benhamadouche (EDF Lab Chatou, France)

087 - Code coupling for the Tube Support Plate clogging in steam generators
A. Couvez (CEA Paris-Saclay, France)

071 - Development of Scaling Laws and Distortion Evaluation for the Passive Molten Salt Fast Reactor (PMFR)
W.J. Choi (Hanyang University, Republic of Korea)

019 - Evaluation of Interface Capturing Schemes for Two-Phase Flow in a Rod Bundle
T. Fukuda (Japan Atomic Energy Agency, Japan)

297 - SOFI 3D – 3D CFD methodology for sodium spray fire calculations used for French SFR 1000 design support
E. May (Framatome, France)

10:30 - 12:30
S6.1 FUELS, MATERIALS AND STRUCTURES | Concrete, Structure, Technology

045 - Evaluating activation potential of raw materials for Low-Activation Concrete and analysing the impact of water content and density on the neutron activation of concrete
E. Vangansbeke (Tractebel (ENGIE) - Head Office, Belgium)

279 - Drop loads on reactor building reinforced-concrete slabs – Design and optimization via fast transient dynamics simulations
M. Barakat (SIXENSE NECS, France)

079 - Analyses of the new RCC-MRx methodologies for creep-fatigue damage
A. Martin (Framatome, France)

114 - Major sealing challenges in SMR & AMR development
F. Ledrappier (Technetics Group, France)

136 - Siliconized graphite under high pv factors for water-lubricated thrust bearings application in main coolant pump
M.K. Lei (School of Materials Science and Engineering, Dalian University of Technology, China)

215 - Manufacturing of Nuclear Power Plants components using Powder Metallurgy Hot Isostatic Pressing process
T. De Terris (EDF Lab Renardières, France)

10:30 - 11:50
S7.2 FUEL CYCLE AND WASTE MANAGEMENT | Scenario/Strategy

154 - Price Tracking and Trend Analysis of Global Nuclear Fuel Market
J. Su (China Institute of Nuclear Industry Strategy, China)

286 - Developing a LWR multirecycling system
C. Evans (Orano, France)

251 - Future Nuclear Policy for the Introduction of Fast Reactor and Fast Reactor Fuel Cycle
K. Takeshita (Institute of Science Tokyo, Japan)

210 - Towards a more efficient and sustainable management of plutonium thanks to OTRERA sodium fast reactor
N. Goujard (Otrera New Enrergy, France)

10:30 - 12:30

S8.2 OPERATION, PERFORMANCE AND RELIABILITY MANAGEMENT | Maintenance and LTO

096 - Plug-In connectors – A unique and innovative solution to extend the qualification of Temperature Measurement Lines for 40 years
V. Chaussonnet (Framatome, France)

203 - Curiosity – A Platform for Data Analytics in Nuclear Engineering
P. Lambert (EDF Lab Chatou, France)

166 - Deployment of an automated robotic solution for redundant operations and human risk mitigations
L. Soubeyrand (Framatome, France)

277 - Highly Irradiated Surveillance Data for Long Term Operation
M. Sokolov (Oak Ridge National Laboratory, United States of America)

175 - Implementation Strategy for a Systematic Ageing Management Programme for the Extended Life Cycle of Embalse NPP
M. Poblete (CNEA National Atomic Energy Commission, Argentina)

259 - SMILE and SMILE 2 - Aging research on harvested LWR components
M. Bjurman (Studsvik Nuclear AB, Sweden)

12:30 - 14:00

LUNCH BREAK

For the lunch break we recommend a range of restaurants and cafes within a short distance from the congress centre: Le Paseo, Le Comptoir des Sables, Le Perroquet, Ditta Pinède, La Mamma, L'Escale, La Bodegga, Lou Cancan, Le Sweet Caffé, Le congrès, La Table d'Asie, le Bubble, Pizza Noli

14:00 - 16:00

S2.4 ADVANCES IN GEN-IV AND FUSION TECHNOLOGIES | Sodium Fast Reactors

117 - Preconceptual design of the ESFR-SMR core with the SDDS multi-objective optimisation tool
P. Servell (EDF Lab Paris-Saclay, France)

077 - Investigation on daily load following operation in sodium cooled fast reactor
K. Aizawa (Japan Atomic Energy Agency, Japan)

097 - Component Technology Development for Sodium Fast Reactor Fuel Handling
E. Kent (Argonne National Laboratory, United States of America)

258 - Core degradation behavior under ULOF transient on CFV-type-core equipped SFR
Y. Onoda (Japan Atomic Energy Agency, Japan)

139 - Validation of detailed fuel pin model in the SIMMER-V code by analysis of CABRI experiment
S. Ishida (Japan Atomic Energy Agency Oarai Research and Development Insititute, Japan)

192 - OTRERA Reactor: Innovative Design and Techno-economic Per-formance of a Modular Sodium-cooled Fast Neutron Reactor
F. Varaine (OTRERA NEW ENERGY, France)

14:00 - 14:40

S3.1 NEW APPLICATIONS OF ADVANCED REACTORS | Nuclear Energy for Low Carbon Mobility

241 - Conceptual Design and Transient Characteristics Analysis of a Nuclear-Powered Superconducting Magnetohydrodynamic Propulsion Ship
J. Yan (Harbin Engineering University, China)

089 - Conceptual Design of Gas-cooled Pressure Tube Reactor for Ma-rine Propulsion (GPT-Marine) with Supercritical CO2 Power Cycle
Y. Kim (Korea Advanced Institute of Science & Technology (KAIST), Republic of Korea)

14:40 - 15:20

S3.2 NEW APPLICATIONS OF ADVANCED REACTORS | Flexibility in the Service of Techno-Economics

198 - Optimising a Nuclear Hybrid Energy System's dispatch strategy: coupling dynamic and techno-economic optimisation tools
G. Masotti (Politecnico di Milano, Italy)

204 - HEXANA: towards a storage and cogeneration system linked to a SMR - SFR type
N. Bertossi (HEXANA, France)

14:00 - 16:00

S5.4 THERMAL HYDRAULICS | V&V and Evaluation of Thermal Hydraulics Codes

253 - Simulation of OECD/NEA ATLAS A5.1 Test using TRACE Code
K.W. Lee (Korea Institute of Nuclear Safety, Republic of Korea)

018 - Gas mixing in a CANDU 6 containment building: Preliminary Benchmarking MAAP-CANDU to 3-D GOTHIC Model
C. Hollingshead (Canadian Nuclear Laboratories, Canada)

090 - Assessment of CINEMA code with FLHT experiment
J.Y. Kang (Korea Atomic Energy Research Institute, Republic of Korea)

048 - Validation of SPACE Code in terms of Filmwise Wall Condensa-tion Heat Transfer using Experiments and MARS-KS Code
H.J. An (Hanyang University, Republic of Korea)

228 - CATHARE-3 and MOSAICS system codes comparison during an Unprotected Transient Over Power: application to the ARAMIS Molten Salt Reactor
C. Razaire (CEA Cadarache, France)

088 - Numerical and Experimental Studies on Air Ingress in CANDU-6 Calandria Vessel
E. Jia (Canadian Nuclear Laboratories, Canada)

14:00 - 16:00

S8.3 OPERATION, PERFORMANCE AND RELIABILITY MANAGEMENT | Safety

011 - Improving Nuclear Component Safety Limits with Greater Sampling of Non-Parametric Ordered Statistics
N. Carstens (Pacific Northwest National Laboratory, United States of America)

165 - Multi-Unit Probabilistic Safety Assessment (MUPSA) Regulatory Framework Development in Korea
K. Kang (Korea Institute of Nuclear Safety, Republic of Korea)

243 - A Novel Method for Automated Dynamic Event Tree Generation to Time-Dependent Accident Sequences Analysis
W. Jo (UNIST | Ulsan National Institute of Science & Technology, Republic of Korea)

211 - Challenges and Insights in Applying Cybersecurity Controls to Nuclear Instrumentation and Control Systems
E. Kirdan (Framatome GmbH, Germany)

101 - Uncertainty and Sensitivity Analysis in Source Term Evaluation Using MELCOR: A Case Study on PHEBUS FPT-1
H.S. Park (Sejong University, Republic of Korea)

170 - Influence of measurement uncertainty in the estimation of decay heat for the PRESTO experience
L. Core (CEA Cadarache, France)

14:00 - 15:40

S9.2 CAPACITY BUILDING FOR NEW PROJECTS AND TECH-ECONOMIC | Training, Climate Change, Strategy and Planning

043 - Development of Chat-based Assistant for Nuclear Engineering Training and Education
A. Detkina (University of Liverpool, United Kingdom)

188 - From climate projections to future power outages: a multi-disciplinary framework
L. Collet (EDF Lab Paris-Saclay, France)

261 - Accelerating Advanced Reactor Deployment through Multi-Purpose, Multi-Industry, and Multi-Echelon Partnerships
B. Stout (Texas A&M University, United States of America)

231 - Automatic layout design method of process pipelines for nuclear power plant based on swarm intelligence optimization algorithm
J. Cheng (Harbin Engineering University, China)

287 - Finite Element Analysis (FEA) Prediction of Welding-Induced Temperature Field in Concrete
J.J. Zhang (Westinghouse Electric Company LLC, United States of America)

16:00 - 16:30

COFFEE BREAK

16:30 - 18:10

S4.2 REACTOR PHYSICS | Nuclear Physics – Applications on Advanced Reactors

036 - Preliminary study of diffusion and SP3 calculations in unstructured mesh geometry for core deformation reactivity evaluation on SFR
S. Kato (Japan Atomic Energy Agency Oarai Nuclear Engineering Insititute, Japan)

226 - Whole Core Depletion Benchmark based on Simplified Joyo Sodium Fast Reactor Model
S. Kumar (Argonne National Laboratory, United States of America)

195 - Molten Salt Reactor burnup calculations with OpenMC and SERPENT Monte-Carlo codes in the MOSARELA platform
J. Martinet (CEA, France)

162 - Comparison exercise of neutronic calculations of the molten salt reactor ARAMIS-A based on data of the ISAC project
A. Paques (Framatome, France)

108 - Pebbles' Life Cycle Analysis in Helium-Cooled Pebble Bed Reactor for Enhanced Fuel Performance Assessment
L. Jantzen (University of California, Berkeley, United States of America)

16:30 - 18:10
S5.5 THERMAL HYDRAULICS | Uncertainty Quantification and Machine Learning

200 - SPECTRA / SUE Analysis of the Effect of Uncertainties in the MSRE Model: Part 2 - Delayed Neutron Precursors
F.S.L. Pangukir (NRG, Netherlands)

206 - SPECTRA / SUE Analysis of the Effect of Uncertainties in the MSRE Model: Part 1: Salt Properties
F.S.L. Pangukir (NRG, Netherlands)

238 - Comparative Evaluation of CHF Prediction Methods: Toward Physics-Informed Hybrid Machine Learning
M. Gui (Harbin Engineering University, China)

046 - A Machine Learning Reduced-Order Model for Thermal-Hydraulic Estimation of Once-Through Steam Generators
Y. Xu (Harbin Engineering University, China)

156 - Development of Robustness Assessment Methodology for Potential Performance Degradation on Passive Safety System
J. Lee (FNC Technology CO. LTD., Republic of Korea)

16:30 - 18:10
S6.2 FUELS, MATERIALS AND STRUCTURES | Fuel Fabrication and Performance

187 - Application of additive manufacturing to produce innovative UO2 nuclear fuels
I. Mestrallet (CEA Cadarache, France)

173 - A spiral shaped nuclear fuel pellet optimized for thermal cycling
L. Desgranges (CEA Cadarache, France)

158 - Development and Modeling of Laser Experiments for Central Hole Formation in PWR Fuel Pellets
M. Gerard (CEA Cadarache, France)

240 - LOCA Behavior Assessment of High Burnup Large Grain Fuel with Cr-coated Cladding
J. Xie (Harbin Engineering University, China)

225 - Corrosion mechanism of austenitic stainless steel in simulated small modular reactor primary water chemistry
V. Karastoyanov (UCTM, Bulgaria)

16:30 - 17:50
S7.3 FUEL CYCLE AND WASTE MANAGEMENT | Circular Economy - Valorisation of Materials

299 - Research and development to bring the PUMAS (Plutonium Uranium Mono-Amide Separation) process to industrial maturity
X. Heres (CEA, France)

124 - REGAIN project : Recycling of Zirconium Nuclear Hulls
A. Ropp (Orano Support, France)

070 - Prototype testing and optimization of the Aqueous Partitioning and Key Element Recovery process
N. Reynier (Natural Resources Canada, Canada)

116 - Parcoval project: Pd recovery from spent nuclear fuels
P. Berenguer-Besnard (ORANO La Hague, France)

16:30 - 18:10
S9.3 CAPACITY BUILDING FOR NEW PROJECTS AND TECH-ECONOMICS OF NUCLEAR REACTORS | Techno-Economy and Costs

123 - Advanced Technology Applications and Cost Impact of Hualong Reactor Models
J. Qu (China Nuclear Power Engineering Co., Ltd., China)

260 - Techno-economic evaluation of a hybrid Small Modular Reactor (SMR) based on E-SMR design
L. Longo (CEA, France)

163 - Business models for lead-cooled fast reactors
F. Tassone (Politecnico di Milano, Italy)

199 - Otrera - Cost Estimation Methodologies for Small Modular Reactors - A Structured Cost Breakdown Approach
R. Dupraz (OTRERA NEW ENERGY, France)

068 - Techno-Economic and Environmental Data for Energy Transition - Case of Wind, Fossil, and Nuclear Energy at CEA
S. Cathalau (CEA Cadarache, France)

19:00 - 22:00
CONFERENCE PARTY

Sponsored by Sfen

Friday 19 September

08:00 - 09:00
Convention Center Opening - Check-in

09:00 - 09:45
KEYNOTE | Adaptation to Climate Change

SPEAKER: Sylvie Parey, EDF R&D - Senior Scientist

09:45 - 10:45
PANEL | Nuclear Heat Applications

MODERATOR: Valérie Faudon, Sfen - Executive Director

PANELISTS:
Fei Liu, Shandong Nuclear Power Company Ltd, a Subsidiary of SPIC - Chairman
Janne Liuko, HELEN - Nuclear Program Manager, New-Build programs Advisory
Pierre Gavoille, CEA - GEN4 & SMR R&D Program Manager

COFFEE BREAK

11:15 - 12:55
S2.5 ADVANCES IN GEN-IV AND FUSION TECHNOLOGIES | Gaz Reactors and Reactor Safety

112 - Application of the GIF Safety Design Criteria and Safety Design Guidelines on Passive Reactor Shutdown Capability to Next Generation Sodium-Cooled Fast Reactor in Japan
H. Yamano (Japan Atomic Energy Agency, Japan)

168 - Core design of recriticality-free, D2O-cooled thorium breeder reactor
T. Shinohara (Tokyo City University, Japan)

129 - Development of HTGR Demonstrator for Hydrogen Production
M. Kauchi (Mitsubishi Heavy Industries, Kobe Shipyard, Japan)

220 - Implementation of Liquid Metal and Molten Salt technologies in nuclear standards: RCC-MRx example
T. Lebarbé (CEA, France)

099 - Decay heat calculations and application of the lines of defence method to Chloride Molten Salt Reactor ARAMIS-A
J. Halwani (CNRS-IN2P3 / LPSC & Subatech / Grenoble-Alpes University, France)

11:15 - 12:35

S3.3 NEW APPLICATIONS OF ADVANCED REACTORS | Nuclear Energy for the Production of Low-Carbon Synthesis Molecules

145 - NPHyCo EURATOM funded project: techno-economic feasibility of hydrogen production on already existing European Nuclear Power Plants
C. Herrero Moriana (Westinghouse, Spain)

209 - OTRERA Sodium Fast Reactors for Large-scale Production of Low Carbon Hydrogen and E-fuels: Overview
A. Bournat (Otrera New Energy, France)

224 - Cost Reduction in Nuclear-Coupled High-Temperature Electrolysis: A Techno-Economic Assessment of LCOH
C. Yoon (Korea Advanced Institute of Science & Technology (KAIST), Republic of Korea)

292 - Fully Dedicated Nuclear Power Plants for the Low-Carbon Production of Energetic Molecules
J. Cardolaccia (CEA Cadarache, France)

11:15 - 12:35

S4.3 REACTOR PHYSICS | IA & Machine Learning

038 - Deep Q learning for loading pattern optimization - a proof of concept
F.X. de Cordoue (Edf Lab Paris-Saclay, France)

060 - Limitations of traditional Bayesian calibration techniques for fuel performance codes
S. Maccario (EPFL - Swiss Federal Technology Institute of Lausanne, Switzerland)

105 - Towards Objectivity in Nuclear Severe Accidents Analysis via K-Means Clustering and Decision Tree Insights Analytics (DTIA) Framework
K. Hossny (KTH, Sweden)

189 - Reliable Neural Network Model for Accelerating Coupled Thermodiffusion Simulations
M.B. Yahiaoui (CEA Cadarache, France)

11:15 - 12:35

S5.6 THERMAL HYDRAULICS | Multiscale and Multiphysics

290 - Practical Flow-induced Vibrations of Pipes in Nuclear Power Plants: an Overview
P. Moussou (EDF Lab Paris-Saclay, France)

085 - Prediction of Large Vapor Mass Formation Under Subcooled Flow Boiling
A. Ono (Japan Atomic Energy Agency, Japan)

234 - Multi-scale Thermal Hydraulics Analysis for Passive Safety System of an SMR
S.J. Lee (Korea Atomic Energy Research Institute, Republic of Korea)

049 - Cooling capability of remaining core fuel after core degradation in SFRs
Y. Imaizumi (Japan Atomic Energy Agency Oarai Research and Development Insititute, Japan)

11:15 - 12:35

S7.4 FUEL CYCLE AND WASTE MANAGEMENT | Waste Management and Decommissioning

133 - Research on Evaluation Index System for High-quality Development of Decommissioning and Waste Management Industry in China
L. Shi (China Institute of Nuclear Industry Strategy, China)

248 - Reducing Radiation Doses of High-Level Waste from Spent Fuel Reprocessing and the Core Debris of Fukushima Daiichi NPS: Possibility of Cluster Fission by Muon Technology
T. Narabayashi (Institute of Science Tokyo, Japan)

207 - UMTEC Project: A Mobile Contaminated Water Treatment Unit
V. Le Breton (Veolia Nuclear Solutions, France)

255 - Research on the Operation Mechanism of Low level Radioactive Waste Disposal Sites in China
J. Hu (China Institute of Nuclear Industry Strategy, China)

13:00

END OF ICAPP 2025

Posters

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P1. WATER COOLED REACTOR PROGRAMS & RELATED SMR DEVELOPMENTS

172 - AP300™ SMR Innovative Approach to Fuel Cycle Extension
A. Talarowska (Westinghouse Electric, Poland)

180 - Multi-Dimensional Evaluation of Emergency Cooling Tank Performance for i-SMR during EDV-LOCA Using MARS-KS
J. Hruskovic (FNC Technology Co., Ltd., Republic of Korea)

P2. ADVANCES IN GEN-IV AND FUSION TECHNOLOGIES

118 - Performance Evaluation of a Two-Region High-Temperature Gas-Cooled Reactor Core for Spent Fuel Direct Reuse
H.F. Chong (Institute of Science Tokyo, Japan)

P3. NEW APPLICATIONS OF ADVANCED REACTORS

041 - Reactor Response during Thermal Load Fluctuation Test Using HTTR
T. Hasegawa (Japan Atomic Energy Agency, Japan)

P4. REACTOR PHYSICS

021 - Power Distribution Estimation of Gas-cooled Reactor by PHOEBE Method Using the Detector Response and Power Correlation be-tween Fuel Regions
R. Kimura (Toshiba Energy Systems & Solutions Corporation, Japan)

034 - Chloride-based Molten Salt Fast Reactor Excess Reactivity Control through GdCl3 Mixed Fuel Salt
S.Y. Paek (Hyundai Engineering & Construction, Republic of Korea)

148 - Enhancing Nuclear Reactor Core Simulation through Data-Based Surrogate Models
P. Beja-Battais (Framatome, France)

164 - C3PO: a code-agnostic coupling library, and application to a neutronics / fuel performance coupling
C. Patricot (CEA Saclay, France)

P5. THERMAL HYDRAULICS

032 - Research on the Heat Transfer of Passive Residual Heat Removal Heat Exchanger
C. Peng (Nuclear Power Institute of China, China)

040 - Experimental study on the influence of thermal hydraulic parameters on the critical heat flux of external vessel cooling of HPR1000
Z. Zhang (Nuclear Power Institute of China, China)

190 - Application of Time-Resolved Dimensionless Analysis in Integral Test Facility Scaling-Up Capability Evaluation
X. Zhang (Huazhong University of Science and Technology, China)

208 - Comparison of DASSH and TRANSURANUS in steady-state subchannel problems of LFR
F. Pepe (Politecnico di Torino, Italy)

236 - Code Modifications for Improving Non-Condensable Gas Behavior Prediction in CSPACE
M. Choi (FNC Technology Co., Ltd., Republic of Korea)

252 - Considerations of Passive Containment Cooling System Modeling using MARS-KS
H. Seo (FNC Technology Co., Ltd., Republic of Korea)

P6. FUELS, MATERIALS AND STRUCTURES

069 - High-Temperature Steam Oxidation of Chromium Coatings on Zr-2.5Nb Pressure Tube: The Candidate Material for the Canadian Small Modular Supercritical Water Reactor Concept (SCW-SMR)
K. Khumsa-Ang (Canadian Nuclear Laboratories, Canada)

082 - Numerical Evaluation of Fission Products Release for HTR TRISO Fuel
M. Daguet (Framatome, France)

P7. FUEL CYCLE AND WASTE MANAGEMENT

106 - Molten Salt Fuel Recycling Using Ion Selective Membranes
T. Wielenga (Wielenga Innovation Foundation, Inc, United States of America)

179 - VIRERO – A dexterous robotic station for nuclear waste processing and sorting
A. Weber (Framatome, France)

216 - Opportunities and Challenges of Integrating Machine Learning for Remote Operation in Nuclear Environments
S. Delavalle (Veolia Nuclear Solutions, United Kingdom)

274 - A Comparative Study on the Impact Analysis of Aircraft Engine Collision on Spent Nuclear Fuel Cask Considering Temperature and Damage Effects
S.W. Kim (Sejong University, Republic of Korea)

P8. OPERATION, PERFORMANCE AND RELIABILITY MANAGEMENT

051 - Dynamic Safety Verification: A Case Study of Multiphysics Modeling for Molten Salt Reactors within a Model-Based Systems Engineering Framework
S. Gyasi (Assystem, France)

059 - Time Step Sensitivity Analysis for Stable Simulation of the OPR1000 LOCA Scenario Using the CINEMA
S.H. Kwon (Hanyang University, Republic of Korea)

144 - Ensemble Deep Learning Model for Leak Detection from Multi-Channel Acoustic Signals
N. Mikami (Japan Atomic Energy Agency Oarai Nuclear Engineering Institute, Japan)

146 - Innovative Instrumentation and Control Platforms for the Future of Nuclear Power
R. Fabregues (Framatome, France)

298 - Regulatory Review of Light Water SMR Coping Capability for Station Blackout
Y. Choi (Chung-Ang University, Seoul Campus, Republic of Korea)

PLAN YOUR STAY

ACCOMMODATION

Due to a peak traffic period, we highly recommend you to book your transport tickets and accommodation as soon as possible.

👉 You can book directly your accommodation with our hotel partners and your transfers from the airport or the train station to reach the conference center

HOW TO GET TO ANTIBES JUAN-LES-PINS ...

BY PLANE, 2 AIRPORTS

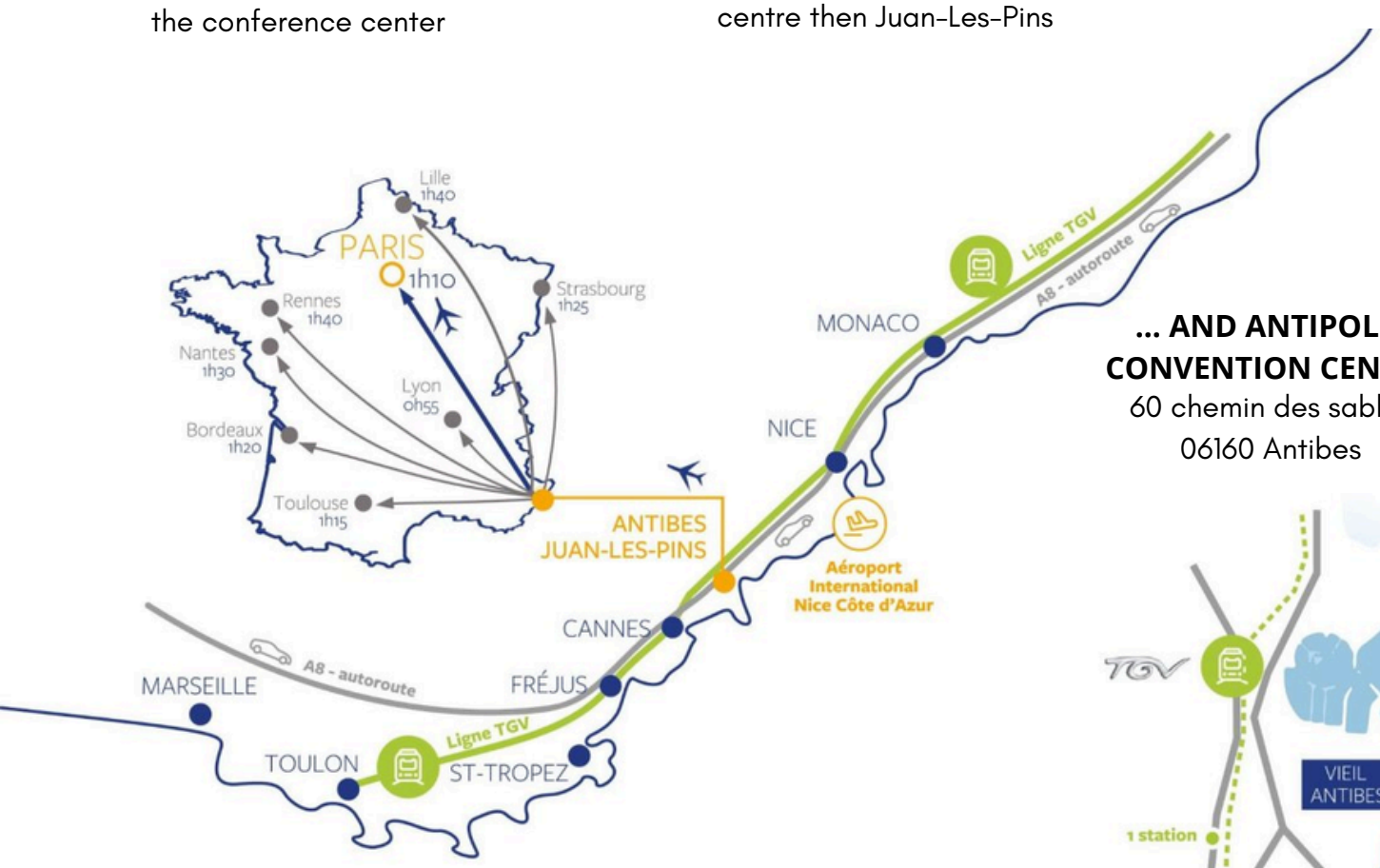
> Nice International Airport - 17Km away
> Cannes-Mandelieu Airport - 20 km away

BY TRAIN

SNCF station in Antibes for **high speeds trains** and SNCF station in Juan-Les-Pins for **regional trains**

BY CAR

A8 Highway « La Provençale » - Exit 44 : Antibes centre then Juan-Les-Pins



... AND ANTIPOLIS CONVENTION CENTRE

60 chemin des sables
06160 Antibes

TAXI

"Official Taxis of Antibes Juan-les-Pins"
The Antibes-Juan-les-Pins taxi fleet is composed of 36 vehicles with air-conditioning.
www.taxiantibes.com
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ANTIBES JUAN-LES-PINS HIGHLIGHTS

An exceptional cultural heritage in the heart of one of Côte d'Azur's most beautiful locations

Located in the heart of the Côte d'Azur, **Antibes Juan-les-Pins** has been building its heritage for over 2,000 years. From the **old town of Antibes**, enclosed in its ramparts, to the **seaside resort of Juan-les-Pins** developed in the late 19th century, via the l**eafy district of Cap d'Antibes**, Antibes Juan-les-Pins is in constant evolution.
Ideally located at the foot of the Alps and with 25 km of Mediterranean coastline, the town proudly displays its colours under the southern sun, bathed in the extraordinary light that is so characteristic of this region of France. Exploring the narrow streets of the **old town**, soaking up the aromas of the various stalls and the **Provençal market**, exploring the **Picasso Museum**, strolling along **Port Vauban**, one of the largest in Europe, and admiring the boats of all sizes, visiting the **Nomade sculpture** and the **Fort Carré.** Walking along its **beach-side promenades**, taking a dip in **crystal-clear waters**, hiking along the **Tirepoil trail** on Cap d'Antibes, shopping, enjoying the nightlife of Juan-les-Pins or old Antibes, savouring **regional cuisine** … Here, all these pleasures and more offer themselves up to you, all year round.

ONE CITY, THREE ENTITIES

ANTIBES No. 14 - Marine / Guynemer

1. Fort Carré
2. Port Vauban
3. Bastion St Jaume
4. Porte Marine
5. Ramparts, Jardins des Poètes
6. Notre-Dame Cathedral and the Sarrazine Tower
7. Picasso Museum
8. Museum of Archaeology
9. Le Safranier, Villa Fontaine
10. La Tourraque
11. Provencal Market
12. Peynet and Cartoon Museum
13. Chapel Saint-Bernardin, Marenda-Lacan district and MonkeyBird fresco of the Garden of Eden
14. Place de Gaulle, Porte de France

CAP D'ANTIBES

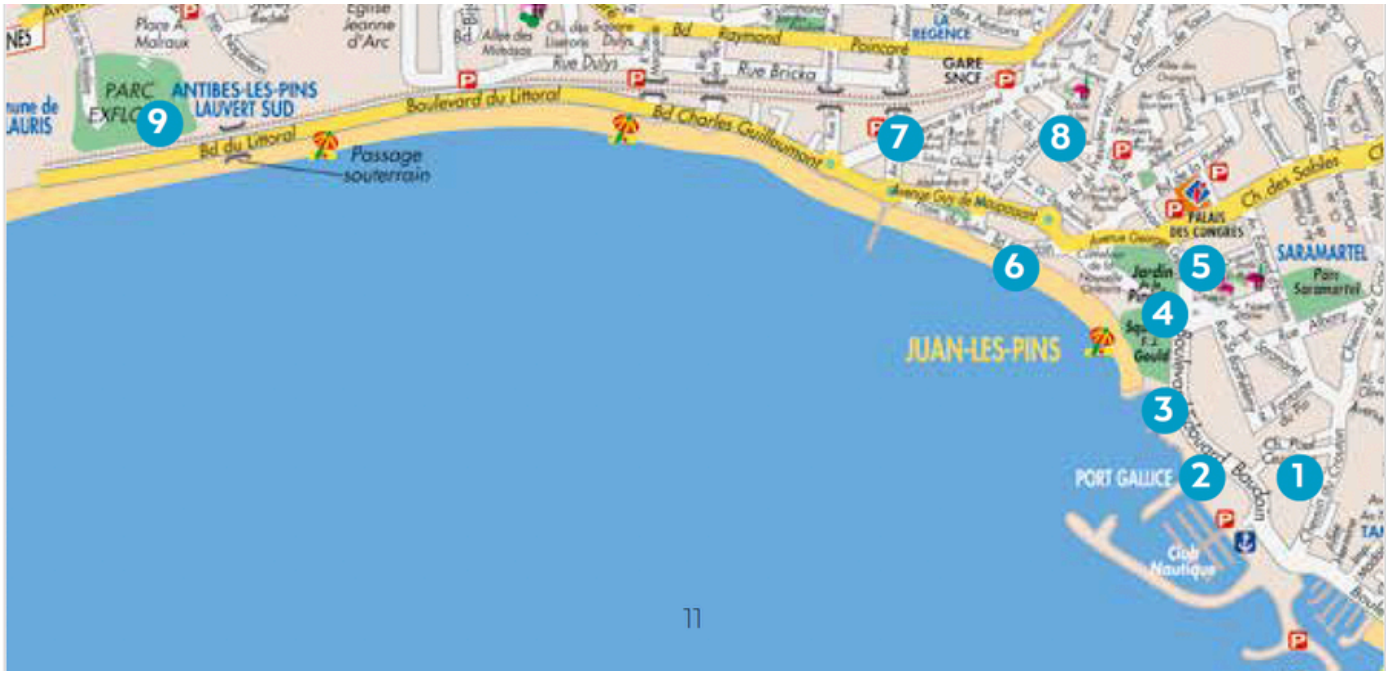
No. 14 / 2 - Salis

1. Port de la Salis
2. Chemin du Calvaire, lighthouse and semaphore, Peynet oratory, the Garoupe chapel
3. Bay of la Garoupe, small beaches, coastal trail known as the Tirepoil Trail
4. Villa Eilenroc and its gardens. Completed in 1867 by the Dutchman Hugh-Hope Loudon, its name is an anagram of Cornélie, his wife.
5. Villa des Chênes Vert (once welcomed Jules Verne, who spent 6 winters there, rewriting his novels. In the midst of a vast park, stands the majestic palace: the Cap-Eden-Roc Hotel.
6. The Graillon battery is located on a natural, 2.2-hectare site belonging to the Conservatoire du Littoral,
7. L'Olivette port shelter, home to restored pointu fishing boats. The Villa Aujourd'hui is a modernist construction, dating back to 1938, by the American architect Barry Dierks.
8. The Villa Thuret and its garden home to a plant research and acclimation centre listed as a «Remarkable Garden»

JUAN-LES-PINS

No. 620, 6, 30

1. Château de Juan-les-Pins
2. Villa la Vigie
3. Hotel Belles-Rives
4. Pinède pine forest
5. Antipolis Convention Centre
6. Promenade du Soleil
7. Art-Deco buildings
8. Palais Biagini, Auberge Pin Doré
9. Exflora Park



You will find hereafter a range of local restaurants and cafes within a short distance from the ANTIPOLIS Convention Centre

FOR A QUICK BITE TO EAT

Provence Café [Dine-in and Takeaway]
Located across the road from the ANTIPOLIS and 10 Bd Baptistin Ardisson
Pizza Noli
6 minute walk from the ANTIPOLIS. 128 bis Bd du Président Wilson
Supermarket Casino
Located in the ANTIPOLIS

BEACH RESTAURANTS

Cap Riviera - 13 Bd Edouard Baudoin
[Creative seafood and meat dishes with refined flavors at a restaurant and terrace overlooking the sea]
L' Effet Mer Plage - 37 bis Bd Charles Guillaumont
[Cocktails & international fare offered in a relaxed waterfront restaurant with tables in the sand]
Ammos Plage - Bd du Littoral
[Grill and fish]
Cap Canailles - Bd du Littoral
[All day beach restaurant overlooking the Mediterranean Sea]

OUR FAVORITE !

Pousse Pousse - Avenue Dr Dautheville
[Asian, Vietnamese, Thai specialties]
La Mamma - Avenue Dr Dautheville
[Italian cuisine]
Le J - Avenue Dr Dautheville
[Innovative cuisine inhereted from the experience of globetrotting patterns]
Le Perroquet - Avenue Georges Gallice [in front of "la pinède"]
[Fine French cuisine]

FOR SPECIAL OCCASIONS BUT ALSO AFTER HARD DAYS WORK

L'Institution - 146 boulevard du President Wilson
[French, Seafood, Mediterranean]
La passagère - Hôtel Belles Rives - 33 Boulevard Edouard Baudoin
[Michelin Star, Creative cuisine]

MICHELIN
2025
FRANCE

Sfen

Our upcoming events
https://www.sfen.org/nos-evenements/