



A.N.T. INTERNATIONAL®

*Boosting your Excellence through Knowledge and Training*



APRIL-MAY – 2024



A.N.T. INTERNATIONAL®

*Boosting your Excellence through  
Knowledge and Training*

## Invitation and Seminar Schedule

Zirconium Alloy Technology (ZIRAT),  
LWR Chemistry and Component Integrity (LCC)

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# Welcome To Our Annual Seminars

We are pleased to announce the arrangements for the ZIRAT28 and LCC19 Seminars that will take place in USA (ZIRAT28) and Spain (ZIRAT28 and LCC19).

*These seminars are open to all current ZIRAT28 and LCC19 members:*

- In USA, the ZIRAT28 Seminar will be hosted by EPRI, USA and will be held at 1200 W W.T. Harris Blvd, Charlotte, NC 28262, Building III, Conference room 741. This is the same place as the ZIRAT27 seminar location in 2023.
  - In Europe, the LCC19 and ZIRAT28 seminars will be hosted by Iberdrola Generacion Nuclear in Madrid and will be held on the Iberdrola Campus in San Agustin de Guadalix. This is the same place as the ZIRAT27/LCC18 seminar location in 2023.
- » The LCC19 Seminar will be held on April 9-11, 2024 in Spain.
- » The ZIRAT28 Seminar will take place on April 9-11, 2024 in Spain and May 29-30, 2024 in USA.



# LCC19 Seminar Presentations



**The following LCC19 Reports will be presented at the LCC19 seminar in Madrid, Spain, April 9-11, 2024:**

- NPC conference highlights (PWRs, BWRs, VVERs and CANDUs) by Juande Sanchez.
- Raw water systems by François Cattant.

**Presentation without Reports will be prepared within the LCC19 Programme as follows:**

**Presentations by:**

- *François Cattant*,
  - Fontevraud X conference highlights.
- *Diego Ferreño*
  - Artificial Intelligence to model neutron embrittlement of nuclear vessels, REMOTE.
- *Mattias Olsson*
  - Activated corrosion products in BWRs.
- *Itai Panas*
  - Atomistic understanding of stress corrosion cracking in the crack tips of stainless steels/nickel base alloys on nuclear system surfaces.
- *Peter Rudling*
  - Is there a future for nuclear power? - Deployment status of advanced reactor technologies and SMR to provide a global overview.
- *Igor Škorvaga*
  - Outlines of water chemistry for Slovak VVER.

*Up to eight (8) persons employed by a LCC19 Member organisation can attend the LCC19 Seminars in Europe.*

## LCC19 Seminar Lecturers

The presentations at the LCC19 Seminar will be given by:

Mr. Francois Cattant, Dr. Diego Ferreño, Dr. Mattias Olsson, Prof. Itai Panas,  
Mr. Peter Rudling, Mr. Juan de Dios Sánchez and Mr. Igor Škorvaga



# ZIRAT28 Seminar Presentations



The following ZIRAT28 Reports will be presented at the ZIRAT28 seminar in Madrid, Spain, April 9-11, 2024:

- Accident Tolerant Fuel
  - *Nicolas Waeckel*
    - Technical and/or economic incentives?
    - Do ATF require specific licensing processes?
  - *Martin Steinbrück*
    - Promising ATF cladding materials.
  - *Audrius Jasiulevicius*
    - Accident Tolerant Fuel.
- Dry storage: Update on "back-end issues", role of hydride reorientation on thermal creep, hydrogen migration, storage, transportation and long-term issues.
  - *Peter Rudling*

Presentation without Reports will be prepared within the ZIRAT28 Programme as follows:

- VVER fuels - design and material performance; operating experience and lessons learned.
  - *Josef Belac*
- Behaviour of hydrogen in cladding tubes under long term dry storage conditions – state of the art, open questions, challenges.
  - *Mirco Grosse*
- Atomistic understanding of cladding Zr alloy corrosion including Accident Tolerant Fuel (ATF).
  - *Itai Panas*
- Is there a future for nuclear power? - Deployment status of advanced reactor technologies and SMR to provide a global overview.
  - *Peter Rudling*
- A case study in forensic PIE evaluation of the impact of rod-rod contact in a PWR on the cladding integrity.
  - *David Schrire*
- Final Storage: Introduction to repository science, the influence of intrinsic fuel properties and redox conditions on fuel dissolution rate.
  - *Kastriot Spahiu*
- IAEA's recent activities on ATF testing, simulation, and licensing
  - *Jinzhao Zhang*

# ZIRAT28 Seminar Presentations



The following ZIRAT28 Reports will be presented at the ZIRAT28 seminar in Charlotte, NC, USA, May 29-30, 2024:

- Dry storage: Update on "back-end issues", role of hydride reorientation on thermal creep, hydrogen migration, storage, transportation and long-term issues.

o *Peter Rudling*

Presentation without Reports will be prepared within the ZIRAT28 Programme as follows:

- PWRs: Overview of current generation PWRs, PWR operating characteristics/problems and, solutions for next generations PWR issues.  
o *Kenny Epperson*
- Material performance differences that have originated from ingots and heat treatment effects (larger SPP) and how they affect uniform and nodular corrosion (in PWRs and BWRs).  
o *Peter Rudling*
- PWR alloy corrosion under oxidizing conditions, and data on hydrogen pickup during accelerated corrosion particularly under oxidizing conditions.  
o *Peter Rudling*
- Is there a future for nuclear power? - Deployment status of advanced reactor technologies and SMR to provide a global overview.  
o *Peter Rudling*
- Physical Metallurgy of Zr-alloys.  
o *Malcolm Griffiths*
- Impact of microstructure due to manufacturing on Zr alloy inreactor behaviour.  
o *Peter Rudling*

*Up to eight (8) persons employed by a ZIRAT28 Member organisation can attend the ZIRAT28 Seminars in USA and Europe.*





# ZIRAT28 Seminar Lecturers

The presentations of the ZIRAT28 Seminars will be given by:

Mr. Josef Belac, Mr Kenneth Epperson, Dr. Malcolm Griffiths, Dr. Mirco Grosse, Dr. Audrius Jasiulevicius,  
Prof. Itai Panas, Mr. Peter Rudling, Mr. David Schrire, Dr. Martin Steinbrück, Prof. Kastriot Spahiu,  
Dr. Nicolas Waeckel and Dr. Jinzhao Zhang.





# Seminar Location and hotels in Charlotte, NC

## EPRI meeting venue

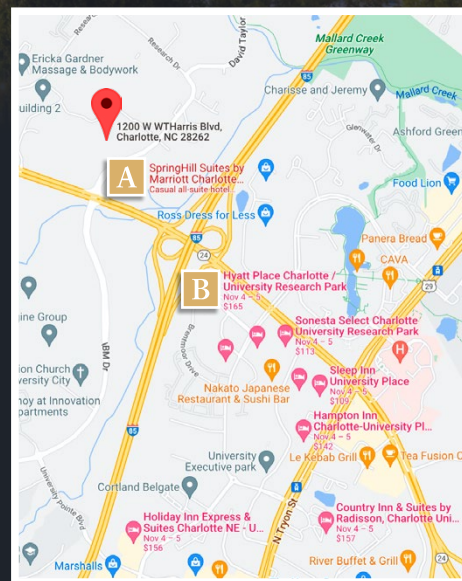
 1200 W W.T. Harris Blvd, Charlotte, NC 28262 Building III, Conference room 741

Building III hosts the EPRI cafeteria, which provides a convenient lunch option. When it comes to dinner, particularly if guests stay uptown, there is a much wider range of choices.

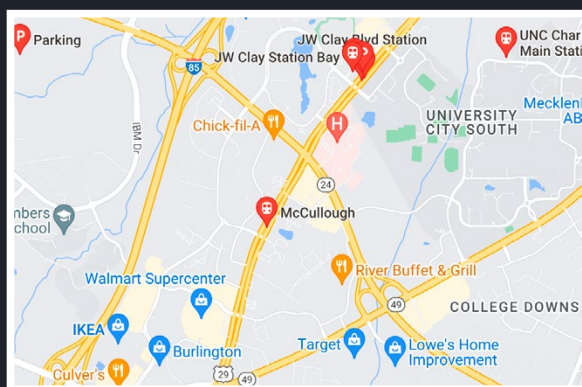
## Hotels:

In terms of proximity below are the two closest hotels (see map).

- A** [SpringHill Suites](#) by Marriott Charlotte University Research Park, 8700 Research Dr, Charlotte, NC 28262.
- B** [Hyatt Place Charlotte](#) / University Research Park, 640 University Center Blvd, Charlotte, NC 28262.



*Regarding accommodation, each participant is responsible for booking his/her own room.*



In Uptown Charlotte there are a wider range of hotels available. There is a convenient light rail that runs between Uptown Charlotte to two nearby stations. However, one has to take a taxi or Uber/Lift from these two locations (McCullough and JW Clay stations) to the EPRI offices, ~5 min ride (see map).



# Seminar Location and hotels in Alcobendas/San Sebastián de los Reyes, Spain

## Iberdrola meeting venue

*The seminar location will be the same as for the 2023 ZIRAT27 and LCC18 Seminars*

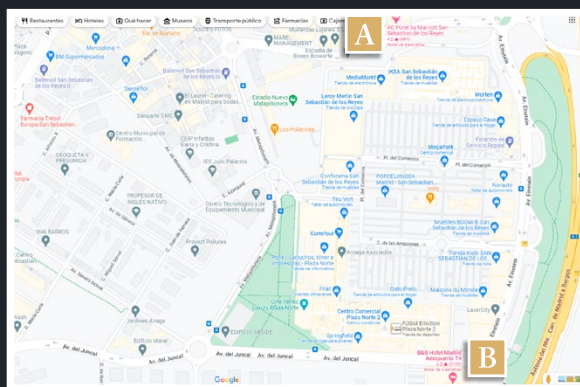
- 1 San Agustín de Guadalix  
– Seminar location
- 2 Alcobendas and San Sebastián de los Reyes – Recommended hotel area

## Hotels:

In terms of proximity below are the two closest hotels (see map).

**A** [B&B Hotel](#) Madrid Aeropuerto T4

**B** [AC Hotel](#) San Sebastian de los Reyes



## Transportation:

*Regarding accommodation, each participant is responsible for booking his/her own room.*

**From the airport:** There is a subway station at Adolfo Suárez Madrid-Barajas airport, to get to Madrid downtown. Then you could go to Plaza de Castilla to get the bus (lines 191 and 193). Taxi is available and recommended, just 15-30 minutes, depending on the traffic. If you choose to get to the Campus by rental car there will be free parking available for all participants.

**From Alcobendas and San Sebastián de los Reyes:** Iberdrola will kindly arrange Iberdrola busses from Alcobendas to the seminar location and back.



# Seminar Registration

In addition to hotel/room reservation, you must also register for the ZIRAT28, and/or LCC19.

Please fill out the online registration by clicking here »



*If you need assistance, please contact us via e-mail: [seminar@antinternational.com](mailto:seminar@antinternational.com)*



We cordially invite you to attend our seminars.  
*Mikaela Rudling and Peter Rudling*



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