



UNIVERSIDAD  
DE GRANADA



**XCITECH**  
School on  
Science and  
Technology

**IFMIF  
DONES  
GRANADA**

**Training professionals  
for Big Science**

**Blanca Biel**

Dep. Atomic, Molecular and Nuclear Physics  
University of Granada, Spain



Session D3, October 6<sup>th</sup> 2022

DONES XCITECH – TRAINING PROFESSIONALS FOR BIG SCIENCE

# OUTLINE



UNIVERSIDAD  
DE GRANADA

Blanca Biel  
biel@ugr.es



# OUTLINE

WHAT

# OUTLINE

WHAT

WHY

# OUTLINE

WHAT

WHY

WHERE

# OUTLINE

WHAT

WHY

WHERE

WHEN



# OUTLINE

WHAT

WHY

WHERE

WHEN

WHO (AND WHOM)

## WHAT



- A science and technology school on **Big Science** Technologies
  - Organised by the **University of Granada – UGR** (Spain)
  - Supported by the **IFMIF-DONES España** consortium



# WHAT

## General topics

### IFMIF-DONES science and technologies:

- Fusion devices
- Neutron sources
- Accelerators technologies

## But also more general courses

- Materials science
- Nuclear physics
- Medical applications
- Environmental challenges in BS

## Our goals:

- **To offer training and education in the technologies needed for Big Science**
  - To become an **incubator** of highly qualified professionals
  - **To provide a meeting point between academia and industry**

# WHAT HOW



Two courses, intercalated over the duration of the school



Two courses, intercalated over the duration of the school

1<sup>st</sup> edition -2023

## IFMIF-DONES in depth

- **Director: Moisés Weber**  
(IFMIF-DONES España)
- **Topics:**
  - The ‘why’ and ‘how’ of IFMIF-DONES
  - Main technologies and systems in IFMIF-DONES facility
  - **Lessons learned** (from LIPAc)
  - Alternative applications of the neutron source
  - **Collaboration with industry**  
- success stories, the road travelled



Two courses, intercalated over the duration of the school

1<sup>st</sup> edition -2023

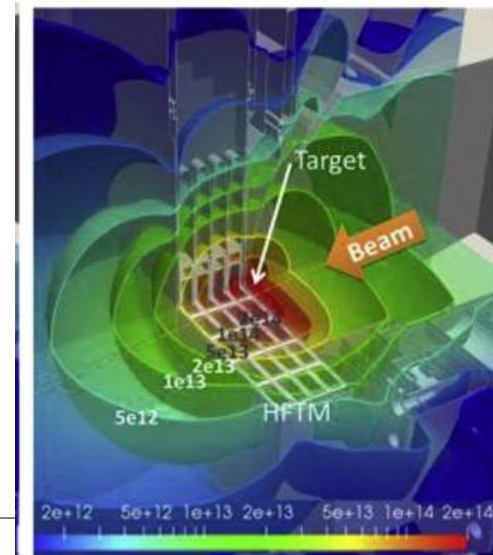
## Radiation Effects on Fusion Structural Materials:

- **Director Eberhard Diegele**

former Karlsruher Institut für Technologie (KIT) and EUROfusion, Garching

- **Topics:**

- **Structural materials of next generation fusion facilities:** candidate materials, the rationale for their selection (economic, environmental, structural...), general behaviour
- **Effects of irradiation** on materials
- State-of the art **modelling** of n-irradiation effects
- **Degradation** of the mechanical and physical properties
- **Fusion neutronics:** nuclear interaction, cross-sections, particle transport, transmutations, generation of gaseous products, He and H from nuclear decay, issues of activation, heat and waste



# WHY

Urgent need  
for people with  
the adequate  
training

Undergraduate  
studies

Masters

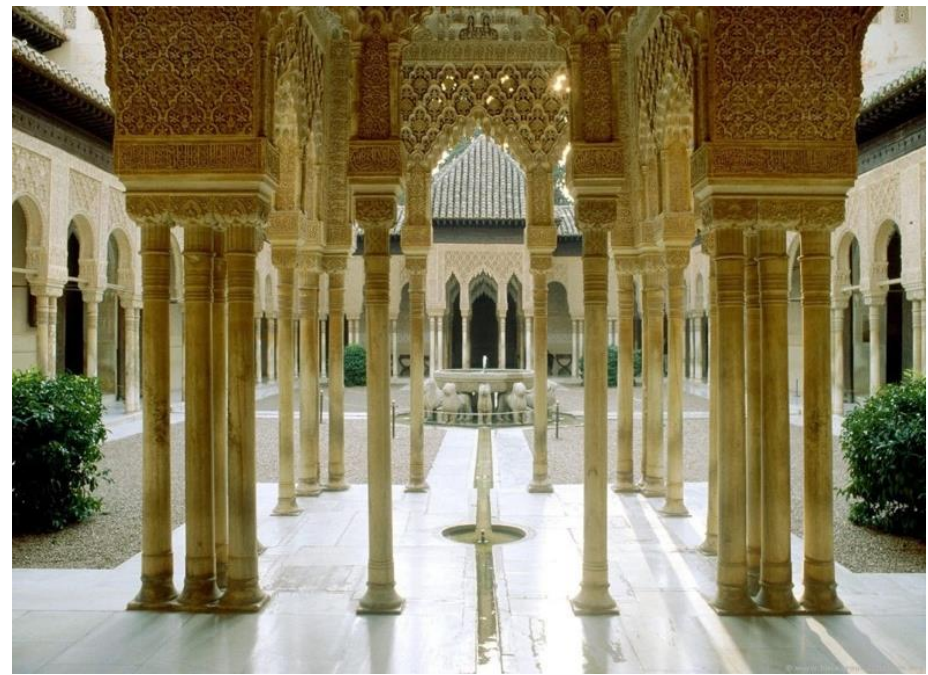
PhD

Schools/  
Courses

Trained  
professionals  
will have more  
opportunities in  
that market

# WHERE

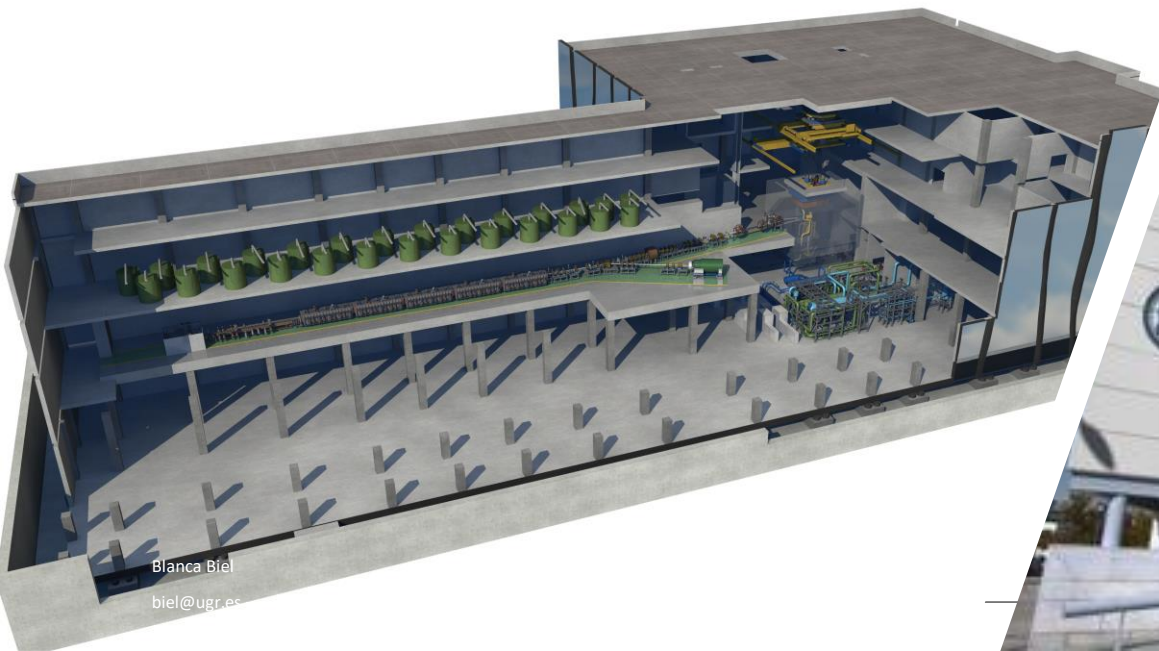




It's a beautiful city ...



But also a science-oriented city





## Acommodation:

University residence  
'Corrala de Santiago'

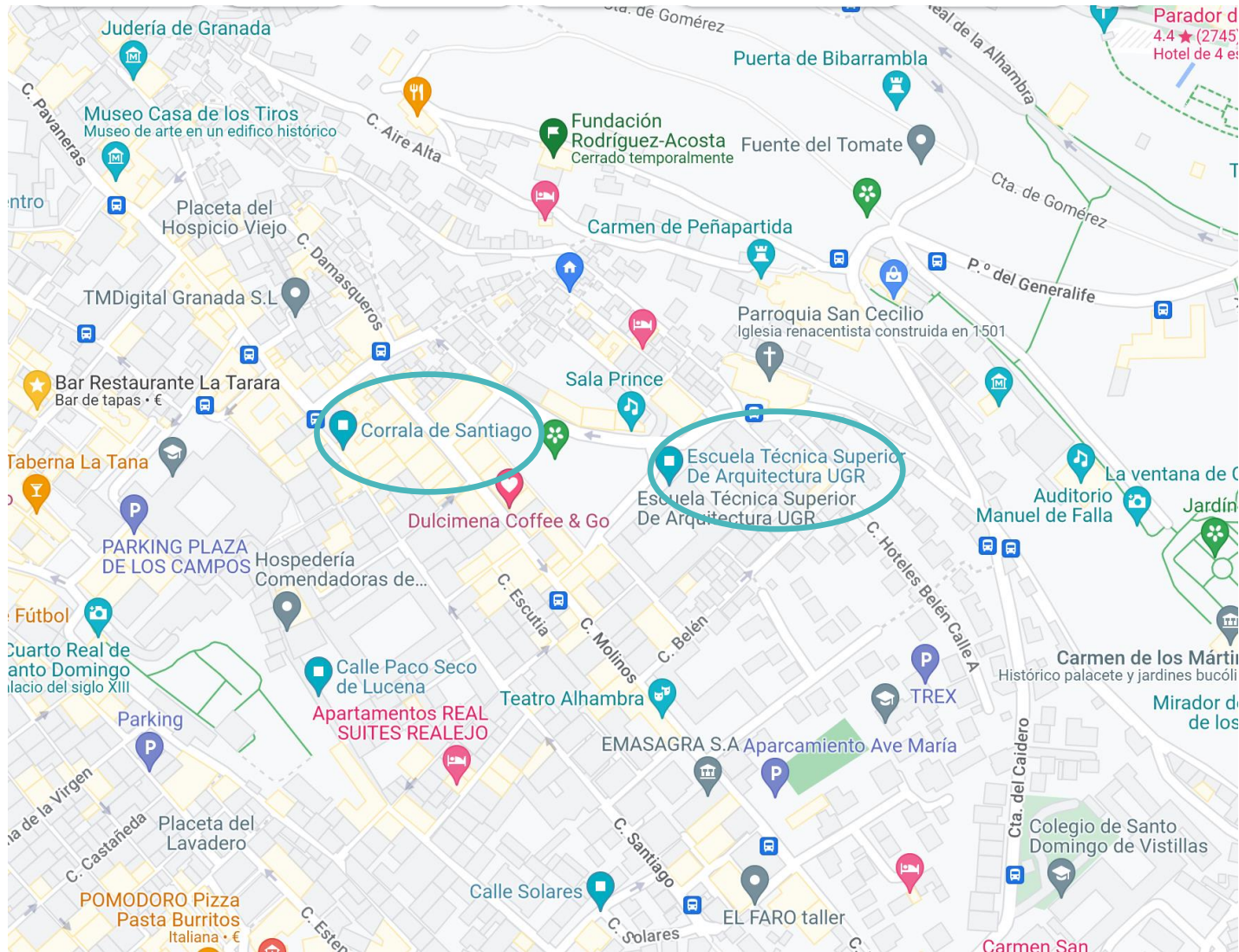
(35 students +  
lecturers)



## Lectures: School of Architecture



# WHERE



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**Social program:**

Night visit to the Alhambra



Gala Dinner at Carmen de la Victoria



## Outreach program:

La Madraza (Centro de Cultura Contemporánea – UGR)



Parque de las Ciencias



**1<sup>st</sup> edition: April 23<sup>rd</sup> - 28<sup>th</sup>, 2023**

Next editions: 2024, 2025, ...

**Registration opening soon at**  
**[www.xcitech-school.org](http://www.xcitech-school.org)**

## Organization Staff:

- **Director of the School:**  
Dr. John Womersley  
University of Edinburgh



- **Co-Director of the School:**  
Dr. Blanca Biel  
University of Granada



- **Director of course on “IFMIF-DONES in depth”**  
Dr. Moisés Weber  
IFMIF-DONES España



- **Director of course “Radiation Effects on Fusion Structural Materials”**  
Dr. Eberhard Diegele  
Karlsruher Institut für Technologie (KIT)



- University of Granada Executive Bureau:  
Miguel Ángel Guardia / José Antonio Carrillo



- Masters students
- PhD students
- Industry

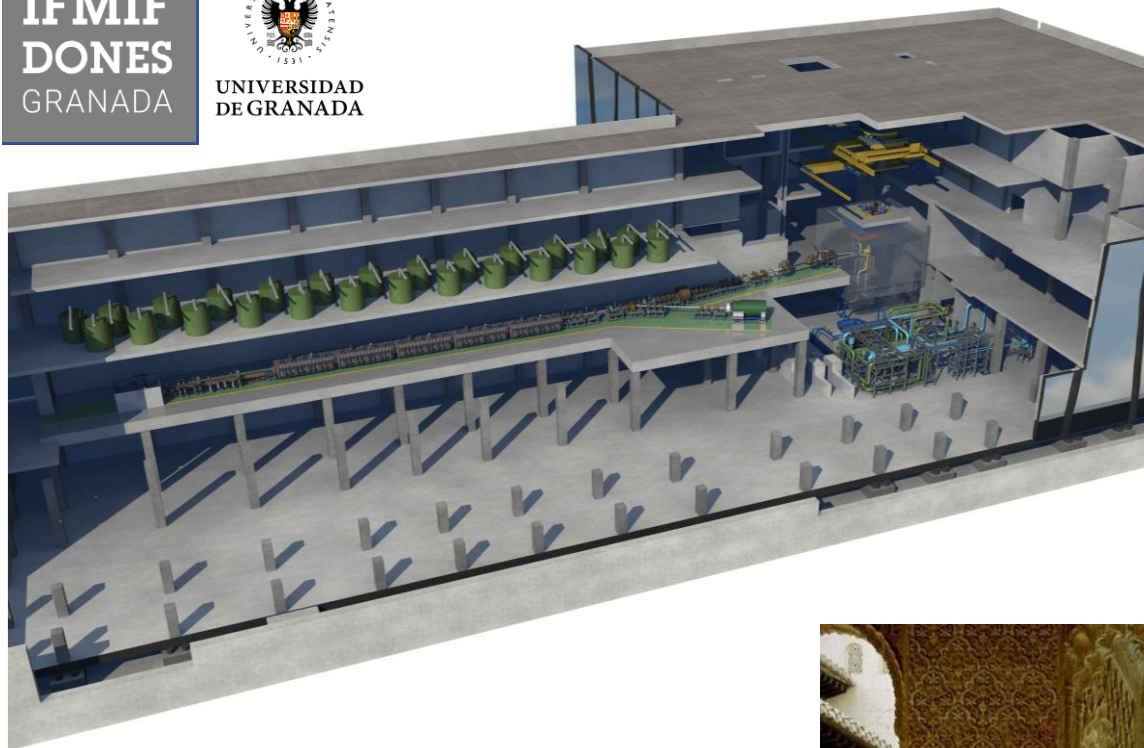
**Anyone interested in  
learning about Big Science  
technologies and  
applications**



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HOPE TO  
SEE YOU  
NEXT  
SPRING !



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