



# Sustainable and Energy Efficient 6G Integrated Antennas



Presentation by Oscar Quevedo-Teruel



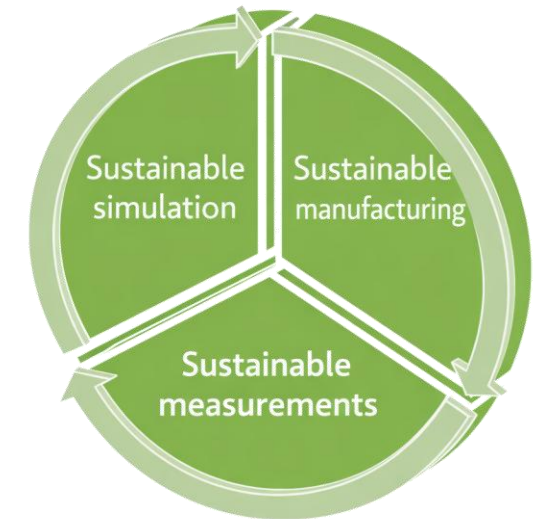


# Introduction to the project goals

- **Main Goal:** Reducing the power consumption in our planet and producing greener communication systems.



- Concrete actions:
  - i. Investigating efficient **simulation methods** for large antennas in the millimetre-wave regime.
  - ii. Producing **sustainable antenna solutions**: cost-effective for mass production and environmentally friendly.
  - iii. Enabling **new measurement techniques** which are fast and efficient.





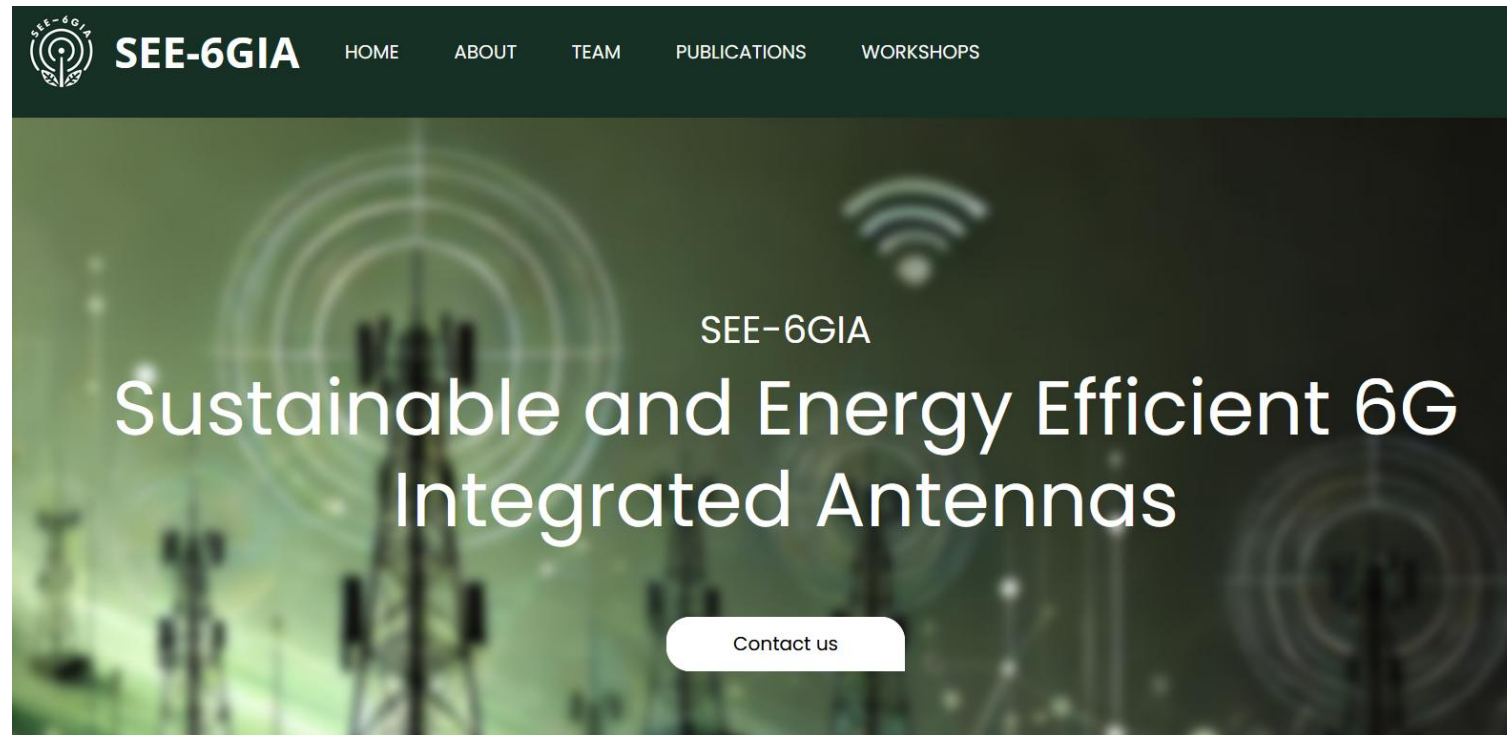
# Participants versus WPs

- Working packages:
    - **WP1:** Analytical techniques (*Fundamentally understanding of large antennas*)  
Led by Prof. Gustafsson (LU) and supported by Prof. Jonsson (KTH)
    - **WP2:** Computational techniques (*Modelling of electrically large antenna structures*)  
Led by Prof. Markidis (KTH) and supported by and Prof. Gustafsson (LU) and Prof. Quevedo-Teruel (KTH)
    - **WP3:** 6G antenna solutions (*Integrated antennas and quasi-optical devices*)  
Led by Associate Prof. Ashraf Uz Zaman (Chalmers); supported by Profs. Sjöberg (LU) and Quevedo-Teruel (KTH)
    - **WP4:** Measurements with a new evaluation methodology (*Testing in anechoic and reverberation chambers of integrated antennas*)  
Led by Prof. Yang (Chalmers); supported by Profs. Sjöberg (LU) and Quevedo-Teruel (KTH)
    - **WP5:** Sustainability (*Energy consumption, life cycle, and environmental impact*)  
Led by Prof. Sjöberg (LU), supported by ALL researchers (KTH, LU, Chalmers)
    - **WP6:** Industrial and International Collaboration (*Workshops, short-missions, and seminars abroad*)  
Led by Prof. Quevedo-Teruel (KTH), supported by ALL researchers (KTH, LU, Chalmers)
    - **WP7:** Dissemination (*Webpage, publications, conferences, and general public*)  
Led by Prof. Jonsson (KTH), supported by ALL researchers (KTH, LU, Chalmers)
    - **WP8:** Administration (*Budget, IP, allocation resources, and general administration*)  
Led by Prof. Quevedo-Teruel (KTH), supported by ALL researchers (KTH, LU, Chalmers)
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# Webpage

<https://ant.eecs.kth.se/SEE-6GIA/>





# Workshop



## Event Details:

**Dates:** 25 May, 2026

**Location:** [Salongen, Osquars backe 31 \(KTH Library, Floor 2\)](#)

25 May 2026  
Stockholm, Sweden

## WORKSHOP AGENDA

Time	Session Details
09:00 – 09:20	<b>Introduction of Attendants and Fika</b>
09:20 – 09:30	<b>Introduction to the Project</b> <i>Prof. Oscar Quevedo-Teruel (KTH Royal Institute of Technology)</i>
09:30 – 10:00	<b>Finite Spatial Symmetries of Array Antennas and Their Application on a Method of Moment Solver</b> <i>Prof. B. L. G. Jansson (KTH Royal Institute of Technology)</i>
10:00 – 10:30	<b>Additive Manufacturing for Sustainable Microwave Systems: Northern Waves Approach</b> <i>Mr. Omar Orgeira (Northern Waves)</i>
10:30 – 11:00	<b>BVH-Accelerated Ray Tracing for High-Frequency Electromagnetic Backscattering</b> <i>Mr. Marco Pasquale (KTH Royal Institute of Technology)</i>
11:00 – 11:20	<b>Coffee Break</b>
11:20 – 11:50	<b>Spatial Degrees of Freedom and Channel Strength for Antenna Systems</b> <i>Prof. Mats Gustafsson (Lund University)</i>
11:50 – 12:20	<b>A Multifunction Aperture with a Planar Metasurface Cloaked Dipole Antenna Array Above a Slot Array Antenna</b> <i>Prof. Daniel Sjöberg (Lund University)</i>
12:20 – 14:00	<b>Lunch (in Syster-och-Bror)</b>
14:00 – 14:30	<b>Recent Developments in Sub-THz Technologies at HUBER+SUHNER</b> <i>Dr. Alejandro Garcia Tejero (HUBER+SUHNER)</i>
14:30 – 15:00	<b>A Simple Measurement Method for Estimation of Active Reflection Coefficient for Large Planar Array Antennas</b> <i>Prof. Jian Yang (Chalmers University of Technology)</i>
15:00 – 15:30	<b>D-band High Gain Planar Antenna Technology</b> <i>Prof. Ashraf Uz Zaman (Chalmers University of Technology)</i>
15:30 – 15:40	<b>Ray Tracing for Antenna Modelling: Balancing Accuracy and Speed</b> <i>Prof. Oscar Quevedo-Teruel (KTH Royal Institute of Technology)</i>
15:40 – 16:50	<b>Coffee Break / Poster Sessions</b>
16:50 – 17:00	<b>Closing Remarks</b>