



# Stellar Phronesis

AI-Photonics for High-Throughput, Low-Power Wireless Systems

# Mission & Technology

**Our Purpose:**  
“High-Throughput,  
Low-Power Wireless  
Systems”



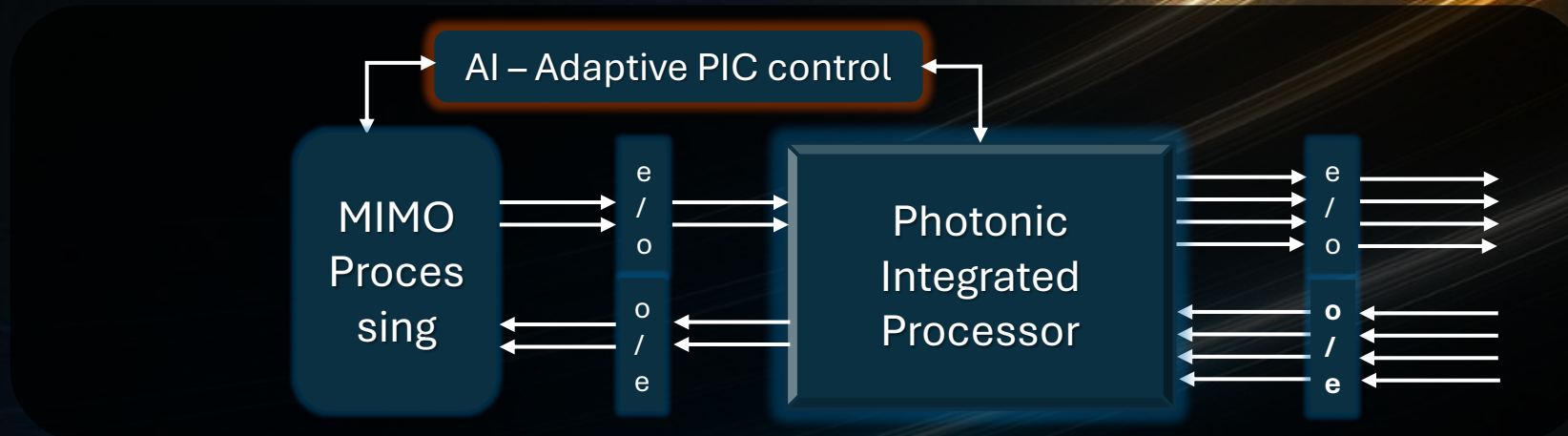
Novel photonic  
integrated  
processor  
architecture



AI-driven adaptive  
processing



Real-time  
environmental  
self-correction,  
adaptive MIMO,  
dynamic bandwidth  
allocation.

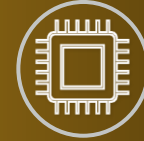


# Core Competencies

Antenna Arrays  
& Fiber-Wireless  
Systems



Photonic  
Integrated  
Circuits



AI-Driven Signal  
Processing  
Algorithms



**Ronis Maximidis**

PhD Antenna arrays. PostDoc:  
Photonic FiWi and MIMO FSO

Fiber Wireless Concept and System  
Developments

Photonic Integrated Circuits Optical and  
Microwave Communication and Sensing



**Christos Mourelatos**

AI Optimization/Processing  
Deep-Tech Commercialization





**Expected Outcome :** Development of algorithms for massive MIMO systems for increased channel capacity and coverage improvements under difficult propagation conditions.

**Scope 1 :** Extreme exploitation of MIMO technologies such as MIMO algorithms, exploitation of extremely large arrays, massive MIMO evolutions, this possibly including massive MIMO technology for enhanced indoor coverage,

**Scope2 :** ... novel beam management schemes in massive MIMO settings leveraging on hybrid analog-digital front-end architectures ...

**Objective:** Develop and validate photonic processors for integration into 6G networks, enhancing performance, channel capacity and energy efficiency.



### Key Activities:

- Development of compact, low-power **MIMO photonic processors** at mmwave/THz frequencies for channel capacity improvement.
- Implementation of AI algorithms for real-time adaptive signal processing f for coverage improvements under difficult propagation conditions.

# Higher Speed Optical Access Networks and future end-to-end Packet Optical Network Architecture in 6G HORIZON-JU-SNS-2025-01-STREAM-B-03-02

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**Expected Outcome :** Integration of photonics and wireless systems including sensing.

**Scope 1:** Integration of wireless and optical and optical sensing as support for services

**Scope2 :** Impact of photonic systems in 6G on energy consumption / sustainability

**Objective:** Develop and validate photonic processors for integration into 6G networks, enhancing performance and energy efficiency support joint sensing and communication.



## **Key Activities:**

- Development of compact, low-power photonic processors for joint sub-THz and FSO links.
- Implementation of AI algorithms for real-time adaptive processor calibration and beamforming.





# "" Schedule a Meeting

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**For more information about  
our technology, contact us:**

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Or you can meet the team in person at our Thessaloniki, Greece office.

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