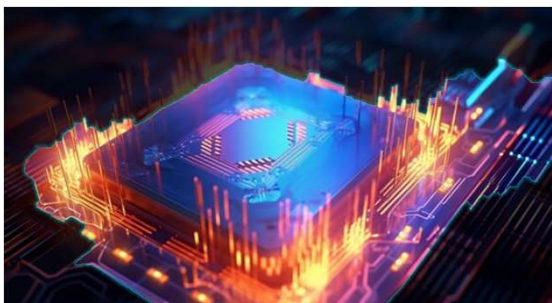


Technology Offer

CSIC/IG/141

## Innovation in the Advanced Production of Semiconductor Qubits for quantum computing



**A semiconductor qubit fabrication with high precision, scalability, and complete alignment control, utilizing advanced lithography and manufacturing solutions to ensure maximum density and uniformity in industrial production.**

### Intellectual Property

European Priority patent / PCT

### Intended Collaboration

Licensing and/or co-development

### Stage of development

Process validated in the laboratory (TRL2/3)

### Contact

Isabel Gavilanes Pérez  
 Vice-presidency for Innovation and Transfer  
 Isabel.gavilanes@csic.es  
 comercializacion@csic.es



### Market need

The development of semiconductor qubits faces major fabrication challenges, particularly in achieving high density, resolution, uniformity, and alignment control with scalable manufacturing processes. Current fabrication approaches, such as electron beam lithography (EBL) or extreme ultraviolet lithography (EUV), struggle to meet the required precision at an industrial scale while maintaining cost-effectiveness.



### Proposed solution

A new method for fabrication of semiconductor Qubits using block copolymer based technologies

The patent addresses current market limitations by enabling:

- High qubit density through sub-10 nm patterning capabilities
- Self-alignment capabilities, ensuring precise qubit control and reproducibility
- CMOS-compatible processing, facilitating integration into existing semiconductor fabrication pilot lines

### Competitive advantages

- More accessible, cheaper process with the same advantages as other Qubits that are manufactured at a higher cost.
- Scalability and high density qubit integration
- Self-aligned structures