



# Red RISC-V:

## Investigación, Formación e Innovación en Sistemas RISC-V



1<sup>as</sup> Jornadas de la Red RISC-V  
Barcelona, Campus UAB-Bellaterra, 5-6 de Febrero de 2020

- **Título de la ponencia:**

Trusted embedded systems based on RISC-V processors

- **Autor:**

Piedad Brox Jiménez, Tenured Scientist CSIC, Microelectronics Institute of Seville (CSIC / University of Seville)

- **Contacto:** brox@imse-cnm.csic.es

- **Abstract:**

The open nature of RISC-V based-processors make them an ideal candidate to build embedded systems for numerous IoT applications. The inclusion of building elements that guarantee the three pillars of CIA (Confidentiality, Integrity, Availability) triad along all lifecycle of the device is a promising challenge. Some solutions have been proposed in academic and industrial sectors during the last years. However, there are still open issues that encourage the development of end-to-end solutions for future IoT devices. The use of a unique digital physical identity derived from Physical Unclonable Functions (PUFs), also known as hardware anchor, to build Trusted Execution Environments (TEE) and high-level security protocols to exchange information in a safe way are active research activities. The build of these future secure IoT devices require the collaboration of multidisciplinary teams that involve specialists in hardware security, embedded processing, and secure communication protocols.

- **Biografía:**

Piedad Brox born in 1979, holds a Doctor of Science in Microelectronics (with honors) from University of Seville (Spain, 2009). She obtained two post-doctoral fellowships funded by Spanish Government and University of Seville. She belongs to Digital and Mixed Integrated Circuits Design (UDDM) group since 2002, and she became a Tenured Scientist in 2018 at the Microelectronics Institute of Seville (CSIC/University of Seville). Her experience during these years in the design of digital integrated circuits for different application purposes has been applied in the area of hardware security more recently (last 7 years). Her expertise in this area includes scientific works with PUFs extracted from SRAMs implemented on several CMOS integration technologies (TSMC 90nm, UMC 65 nm), and the VLSI realization of trusted virtual sensors using lightweight authenticated ciphers. She has been PI of two research projects funded by Spanish Government (HW-IDENTIoT and ID-EO). She has published more than 80 papers, has supervised 3 PhD theses, and has one US patent licensed by a company. ORCID: <https://orcid.org/0000-0003-1059-5338>