

## Press Release

### Reconfigurable transistors for trustworthy electronics

Dresden, Germany, April 13, 2021 – The *Nanoelectronics Materials Laboratory* (NaMLab gGmbH) has launched the joint research project ‘CirroStrato’ together with *GLOBALFOUNDRIES Dresden Module One*, *Technical University Dresden*, and *University Bremen* on the use of reconfigurable transistors for the protection of circuit design intellectual property. The project is part of the initiative ‘Trustworthy electronics’ of the *German Federal Ministry of Education and Research* (BMBF), has a volume of 2.11 M€, and is running for three years.

Our society today is critically dependent on trust in electronic systems. In this regard theft and unauthorized replication of integrated circuits represent a growing problem. Reconfigurable field effect transistors (RFET) embody a nanotechnological solution for protecting electronic components. Circuits made from this new type of transistor make it possible to change the mode of operation dynamically without having to change the underlying physical structure. The actual function remains hidden and cannot be derived by third parties based on the layout. Dr. Trommer, who leads NaMLab’s emerging device activities points out: “We aim that security solutions based on RFETs will contribute to Germany’s future technology sovereignty”.

In addition to the design and demonstration of secure RFET circuit blocks in hardware, an automated design environment (EDA) and algorithms for the optimal placement of these security cells in any integrated circuits will be developed. The resulting circuits will be verified and tested with formal methods with regard to their protective function against typical attack patterns (e.g. SAT attack).

This project has received funding from the *German Federal Ministry of Education and Research* (BMBF). More information can be found on the project webpage of the ministry:

<https://www.elektronikforschung.de/projekte/ve-cirrostrato>

The joint undertaking will be introduced at the digital conference ‘Vertrauenswürdige Elektronik’ hosted by the BMBF at 14<sup>th</sup> of April.

<https://www.elektronikforschung.de/vertrauenswuerdigkeit/konferenz>

**Project Details:****Acronym:** CirroStrato**Titel:** Neuartige rekonfigurierbare Transistoren für den Know-how-Schutz von Elektronikkomponenten**Volume:** 2.11 M€ (83% BMBF Funding)**Term:** 03/2021 – 02/2024**Call:** Vertrauenswürdige Elektronik (ZEUS)**About the Partners:**

To achieve the goals, the joint project is composed by experts across the electronic industry value chain. The consortium is led by *NaMLab*, who have pioneered in the field of reconfigurable devices since 2011 and have established a worldwide leading position in this field ever since. The device demonstrators will be processed by *GLOBALFOUNDRIES Module One* in Dresden, the leading semiconductor foundry in Europe, based on their 22FDX® technology. Electronic Design Automation (EDA) is researched at the *Chair for Processordesign* at *TU Dresden*. Verification and test against hardware attacks will be carried out by the *'Arbeitsgruppe Rechnerarchitektur'* of *University Bremen*. The *NXP Semiconductors Germany GmbH* is integrated into the activities as an associated partner.

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