TECHNISCHE UNIVERSITÄT DRESDEN

Fakultät Elektrotechnik und Informationstechnik

Task Formulation for a Master Thesis

Student´s Name:	Ertürk Enver Yildirim
Matriculation Number:	4981262
Studies:	Nanoelectronic Systems
Subject:	Ambipolar neurotransistors based on nanomaterials and polarizable films

Objectives of work:

To fabricate an ambipolar neurotransistor for advanced neuromorphic applications, surpassing the memory possibilities of previous unipolar devices developed previously in the Chair of Materials Science and Nanotechnology.

The following requirements shall be accomplished:

1. Fabrication of ambipolar FETs exploring different nanomaterials as semiconducting channel
2. Modification of semiconductor surface with polarizable films providing the hysteresis properties to the transfer characteristics, which lead to the memory capabilities
3. Testing the memory effects on the developed device (learning, forgetting, erasing etc.) and determining the conditions to operate such effects.

Master thesis will be written in English.

Advisor:	Dr. Bergoi Ibarlucea, Chair of Materials Science and Nanotechnology
1st Reviewer:	Prof. Gianaurelio Cuniberti, Chair of Materials Science and Nanotechnology
2nd Reviewer:	Prof. Giang Nguyen, Institute of Communication Technology, Haptic Communication Systems

Start: 17.10.2022

Thomas Mikolajick

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Prof. Dr.-Ing. T. Mikolajick
Chairman of Examination Board

Thesis due: 27.03.2023

Gianaurelio Cuniberti

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Prof. Dr. Gianaurelio Cuniberti
Responsible Professor