MEMRISTORS – DEVICES, MODELS, CIRCUITS

A workshop on memristors organized at the

Institute of Physics, University of Belgrade, Serbia

15th September 2015

Programme
Part I: Devices and Processes

- 17:00 17:20 Bratislav Marinković, Institute of Belgrade
  "Memristors - Devices, Models, Circuits How Electron Collisions Couple with Production of Memristor?"

- 17:20 17:40 Markus Baranowski, Physikalisches Institut, Goethe-Universität, Frankfurt a.M. (AG Huth)
  "Introduction – What is a Memristor Device?"

- 17:40 18:00 Roland Sachser, Physikalisches Institut, Goethe-Universität, Frankfurt a.M. (AG Huth)
  "TiO_2-memristors prepared by focused electron-beam induced deposition"

Programme
Part II: Models and Circuits

- 18:00 18:15 Milka Potrebić and Marija Mrvić, Electrical Engineering, University of Belgrade (EEUB)
  "Further Perspectives on the Simulations on Memristors at the EEUB"

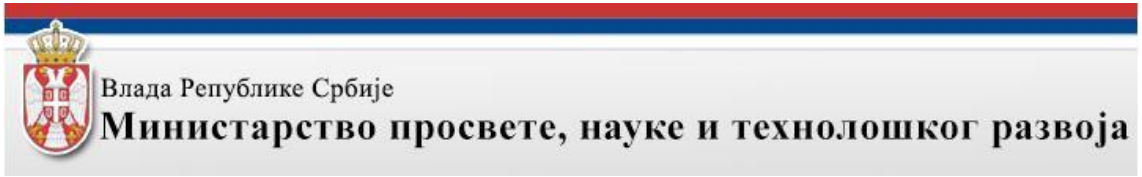
- 18:15 18:30 Marija Mrvić, Electrical Engineering, University of Belgrade (EEUB)
  "What we learned at the MemoCiS COST Action Training School in Sardinia"

- 18:30 18:50 Milutin Nešić, VISER
  "Emulation of a Memristor Element Using a Programmable Microcontroller Device"

- 18:50 19:10 Tomislav Matić, Electrical Engineering, University of Osijek (EEO)
  "Memristor application in the novel wireless transmission method for short range communications based on ultra-wideband pulses"

- 19:10 19:30 Branko Tomčik, IPB
  "Further Perspectives on the Experiments on Memristors at the IPB"

Financing bodies and project acknowledgements



National research project
2011-2015
OI171020 & TR32005

Bilateral project with Germany 2015-2016 : DAAD
"Identifying superior precursor molecules for focused electron beam induced deposition (FEBID)"

cost

Action CM1301 , CELINA
Chemistry for ELectron-Induced Nanofabrication

Action IC1401 Memristors - Devices, Models, Circuits, Systems and Applications (MemoCiS)

cost
MemoCIS
Cost Action IC1401

Memristors – Devices and Proces

How Electron Collisions Couple with Production of Memristor?

Bratislav Marinković

Institute of Physics,
University of Belgrade, Serbia

Introduction
What is a Memristor Device?

Workshop: Memristors - Devices, Models, Circuits, 15.09.2015

Markus Baranowski[1] and Michael Huth[1]
[1]Physikalisches Institut, Goethe-University, Frankfurt a.M., Germany

Thin films and nanostructures

GOETHE UNIVERSITÄT FRANKFURT AM MAIN

TiO_2-memristors prepared by focused electron beam induced deposition

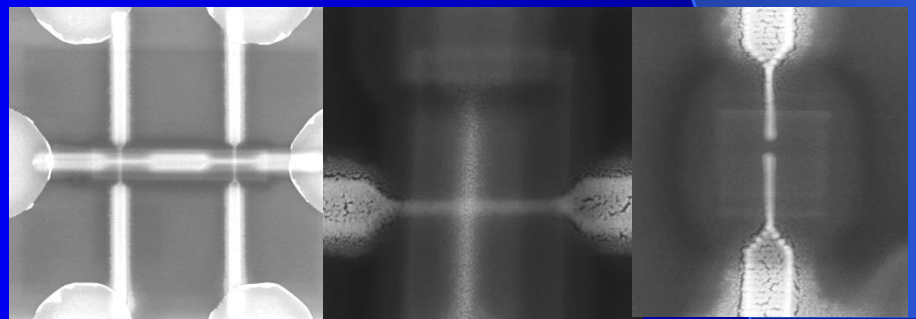
Roland Sachser[1], Markus Baranowski[1], Stefan Ivanovic[2], Bratislav Marinković[2], and Michael Huth[1]

[1]Physikalisches Institut, Goethe-University, Frankfurt a.M., Germany

[2]Institute of Physics, University of Belgrade, Belgrade, Serbia

Workshop: Memristors - Devices, Models, Circuits, 15.09.2015

Thin films and nanostructures



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ICT COST Action IC1401 MemoCIS
Memristors – Devices, Models, Circuits, Systems and Applications
2014-2018

Further Perspectives on the Simulations on Memristors

Dejan Tošić, Full Professor
Milka Potrebić, Associate Professor
Marija Mrvić, M.Sc., Ph.D. Student, presenter

School of Electrical Engineering
University of Belgrade
Serbia

ICT COST Action IC1401 MemoCIS
Memristors – Devices, Models, Circuits, Systems and Applications
2014-2018

What we learned at the MemoCiS COST Action Training School in Sardinia

Marija Mrvić, M.Sc., Ph.D. Student, presenter
Milka Potrebić, Associate Professor

School of Electrical Engineering
University of Belgrade
Serbia

Emulation of a memristor element using a programmable microcontroller device

Milutin Nešić[1], Stefan Ivanović[1], Amela Zeković[1], Slavica Marinković[1], Branko Tomčik[2], Bratislav P. Marinković[2], and Borislav Hadžibabić[1]

[1]School of Electrical and Computer Engineering of Applied Studies Belgrade
[2]Institute of Physics, University of Belgrade

59th ETRAN, 2nd IcETRAN
Srebrno jezero, 8-11.06.2015

INSTITUTE OF PHYSICS
BELGRADE

ETFOS

FACULTY OF ELECTRICAL ENGINEERING

Memristor application in the novel wireless transmission method for short range communications based on ultra-wideband pulses

Tomislav Matić

Faculty of Electrical Engineering Osijek

Branko Tomčik - Further Perspectives on the Experiments on Memristors at the IPB

Background

MemoCIS 1st Workshop dedicated to Memristor-Devices, Models, Circuits, Systems and Applications, Lisbon, Portugal, 09-11.05.2015

Keynote speaker: Daniele Ielmini (Politecnico di Milano, Italy)
Themis Prodromakis (University of Southampton, UK)
Invited speaker: Farnood Merrikh Bayat (University Santa Barbara, USA)

Useful official site: https://twitter.com/MemoCISofficial
www.nanomemristors.com

Main types of memristor devices:

- Metal oxide materials (TiOx, HfOx, TaOx)
- Organic materials –Polyaniline (PANI) devices
- Chalcogenide materials, with elements like S, Se, Te

References

- **[1] Milka Potrebic, Dejan Tosic,**
  “Application of Memristors in Microwave Passive Circuits”
  ***Radioengineering*, 24(2) 408-419 (2015).**
  http://www.radioeng.cz/fulltexts/2015/15_02_0408_0419.pdf

- **[2] Milutin Nešić, Stefan Ivanović, Amela Zeković, Slavica Marinković, Branko Tomčik, Bratislav P. Marinković, and Borislav Hadžibabić, “Emulation of a memristor element using a programmable microcontroller device”**
  Proc. of Papers 2nd Int. Conf. on Electrical, Electronic and Computing Engineering (IcETRAN 2015), June 8-11, 2015, Srebrno jezero, Serbia, Editors: Z.Nikolic and .Potkonjak, Oral presentation, Abstract: EKI1.4, p.28-29. Best Section Paper Award (ETRAN Society, Belgrade, Academic Mind) ISBN:978-86-80509-71-6
  http://etran.etf.rs/etran2015/fajlovi/Program_IcETRAN_2015.pdf

- **[3] Michael Huth, Fabrizio Porrati, Christian Schwalb, Marcel Winhold, Roland Sachser, Maja Dukic, Jonathan Adams and Georg Fantner, “Focused electron beam induced deposition: A perspective**
  ***Beilstein J. Nanotechnol.* 2012, *3,* 597–619.**
  http://www.beilstein-journals.org/bjnano/content/pdf/2190-4286-3-70.pdf