

Welcome to  
**WAMOS 2018**

the 4<sup>th</sup> Wiesbaden Workshop on Advanced Microkernel Operating Systems

August, 9<sup>th</sup> 2018  
Wiesbaden, Germany

# WAMOS 2018

Solicited *short* and *long* papers.

- up to five (short) or ten (long) pages
- intended for reports on research or surveys wrt. hardware-related attacks (aka Meltdown & Spectre) and mitigations thereagainst.

Received 13 submissions

Review process

- each paper received between two and four reviews
- 11 unconditionally accepted
- 2 weakly accepted

Accepted all 13 papers

- re-submission of camera-ready papers
- improved quality

## Many thanks to the program committee!

Jens Nazarenus, Wiesbaden University of applied sciences

Jonas Depoix, Wiesbaden University of applied sciences

Alexios Karagiozidis, Wiesbaden University of applied sciences

Ben Stuart, Wiesbaden University of applied sciences

Marius Sternberger, Wiesbaden University of applied sciences

Thorsten Knoll, Wiesbaden University of applied sciences

Danny Ziesche, Wiesbaden University of applied sciences

Bernhard Grtz, Wiesbaden University of applied sciences

Marc Lw, Wiesbaden University of applied sciences

Harald Heckmann, Wiesbaden University of applied sciences

Tobias Reichert, Wiesbaden University of applied sciences

Lucas Noack, Wiesbaden University of applied sciences

Dominik Swierzy, Wiesbaden University of applied sciences

Philipp Altmeyer, Wiesbaden University of applied sciences

Lars Mller, Wiesbaden University of applied sciences

*RheinMain University of Applied Sciences, Wiesbaden, Germany*

# Agenda

Diverse program:

- Hardware-Related Attacks
- Mitigation
- Cross-Cutting Concerns

Morning:

- 9:15 – 1:15 Keynote(s) and Awards:
- 10:00 – 11:00 Session 1: Hardware-Related Attacks
- 11:30 – 12:30 Session 2a: Mitigation I

Afternoon:

- 13:30 – 15:30 Session 2b: Mitigation II
- 16:00 – 17:30 Session 3: Cross-Cutting Concerns
- 17:30 – 17:45 Closing remarks

# Session 1: Hardware-Related Attacks (9:15 – 11:15)

- Branchscope and More  
*Dominik Swierzy*
- Exploiting Speculative Execution (Spectre) via JavaScript  
*Lucas Noack and Tobias Reichert*
- Spectre-NG, an avalanche of attacks  
*Marius Sternberger*
- Common Attack Vectors of IoT Devices  
*Alexios Karagiozidis*

## Session 2: Mitigation (11:30 – 15:30)

- Mitigation of actual CPU attacks A hare and hedgehog race not to win  
*Jens Nazarenius*
- KPTI a Mitigation Method against Meltdown  
*Lars Mller*
- Current state of mitigations for spectre within operating systems  
*Ben Stuart*
- Overview of Meltdown and Spectre patches and their impacts  
*Marc Lw*
- Attempts towards OS Kernel protection from Code-Injection Attacks  
*Bernhard Grtz*
- An overview about Information Flow Control at different categories and levels  
*Danny Ziesche*

## Session 3: Cross-Cutting Concerns (16:00 – 17:30)

- Detecting Spectre Attacks by identifying Cache Side-Channel Attacks using Machine Learning  
*Philipp Altmeyer and Jonas Depoix*
- Software based side-channel attacks on CPUs - Their history and how we behaved  
*Harald Heckmann*
- Adapting Kerckhoffss principle: CPU Attacks leading a path from cryptography to open-source-hardware  
*Thorsten Knoll*

## Discussion and Closing Remarks

Many thanks to the authors and the PC for an interesting day!

*Grades to be determined by end of August.*

WAMOS'19 not very likely to happen, will offer Advanced Operating Systems (6CP variant) next summer

If not yet done, please send me your slides (PDF)

Feedback and suggestions for next year?

- Need more time!
- ....