

Symposium Resistive Switching (SYRS)

jointly organized by
the Thin Films Division (DS),
the Dielectric Solids Division (DF),
the Crystallography Division (KR), and
the Semiconductor Physics Division (HL)

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The phenomenon of “resistive switching” relates to the observation that in various materials the electrical resistance is not a material-specific constant, but that it can be modified by applying a voltage or current pulse. This effect is exploited in the resistive random access memory (RRAM) concept to generate highly scalable non-volatile memory elements. With silicon-based CMOS technology reaching the lower limit of scalability according to Moore’s law, the RRAM concept has matured to a viable alternative with the potential to further reduce device area and power consumption. Suitable materials range from simple binary metal oxides to the higher chalcogenide based phase change materials.

The symposium will give an overview about the current state of research, the status of device performance and aims to stimulate discussions about the complex details of the underlying physical mechanisms.

Overview of Invited Talks and Sessions

(lecture room H 0105)

Invited Talks

SYRS 1.1	Thu	15:00–15:30	H 0105	Redox-based resistive memories - recent progress — ●RAINER WASER
SYRS 1.2	Thu	15:30–16:00	H 0105	Electric Formation of Metal/SrTiO₃ Junctions and its Correlation to Multi-Dimensional Defects — ●DIRK C. MEYER, HARTMUT STÖCKER, JULIANE HANZIG, FLORIAN HANZIG, MATTHIAS ZSCHORNAK, BARBARA ABENDROTH, SIBYLLE GEMMING
SYRS 1.3	Thu	16:00–16:30	H 0105	The Connecting between the Properties of Memristive Material Systems and Application Requirements — ●THOMAS MIKOLAJICK, STEFAN SLESAZECK, HANNES MEHNE
SYRS 1.4	Thu	16:30–17:00	H 0105	Mechanism of resistive switching in bipolar transition metal oxides — ●MARCELO ROZENBERG
SYRS 1.5	Thu	17:00–17:30	H 0105	Resistive switching memories: Mechanisms, modeling and scaling — ●DANIELE IELMINI

Sessions

SYRS 1.1–1.5	Thu	15:00–17:30	H 0105	Symposium Resistive Switching (joint symposium organized by DS, DF, KR, HL – Organizers: Gemming, Dittmann)
SYRS 2.1–2.49	Thu	17:30–19:00	Poster E	Poster: Resistive switching (jointly organized by DS, DF, KR, HL)
SYRS 3.1–3.5	Fri	9:30–10:45	H 0111	Resistive switching I (jointly organized by DS, DF, KR, HL)
SYRS 4.1–4.6	Fri	11:00–12:30	H 0111	Resistive switching II (jointly organized by DS, DF, KR, HL)