

10 years of ferroelectric HfO₂

March 10th

Time	Intro			
09:00:00	Intro	U. Schroeder	NamLab	Introduction / Overview of ferroelectric properties in doped HfO ₂ or ZrO ₂
Session 1: Impact of dopants and oxygen vacancies				
09:20:00	Exp	P. Polakowski/J. Mueller	Fraunhofer IPMS/CNT	Ferroelectricity in dopant free HfO ₂
09:35:00	Exp	T. Dimoulas	Demokritos, Athens	Field induced ferroelectricity in Ge doped ZrO ₂
09:50:00	Exp	J. Jones	NC State	Structural characterization of doped HfO ₂ films: From XRD to TOFSIMS
10:05:00	Discussion			chair: Uwe Schroeder
10:25:00	Exp/Sim	L. Larcher/M. Pešić	Modena/NaMLab	Field cycling of HfO ₂ : impact of oxygen vacancies
10:40:00	Sim	A. Kersch	UAS Munich	Simulation: different dopants in HfO ₂
10:55:00	Sim	R. Batra/R. Ramprasad	Univ. Connecticut	Factors favoring ferroelectricity in hafnia: a first principles computational study
11:10:00	Discussion			chair: Thomas Mikolajick
11:30:00	Break			
Session 2: Domain structure, nucleation and switching dynamics on nanoscale				
12:00:00	Exp	H. Mulaosmanovic	NaMLab	Single domain switching in FeFET devices
12:15:00	Exp	I. Stolichnow	EPFL Lausanne	Low temperature Piezo Force Microscopy of ferroelectric HfO ₂
12:30:00	Exp	T. Schenk	NLB/ORNL	Piezo Force Microscopy of doped HfO ₂ layers
12:45:00	Discussion			chair: Cheol Seong Hwang
13:05:00	Lunch @MPI			
Session 3: Negative capacitance				
14:05:00	Exp + SIM	S. Salahuddin	UC Berkeley	Multi-domain phase field model simulations of PZT switching and negative capacitance transience
14:20:00	Exp + SIM	C.S. Hwang	SNU Seoul	Emergence and frustration of negative capacitance effect in dielectric/ferroelectric bi-layers
14:35:00	Exp	A. Ionescu	EPFL Lausanne	Condition for the negative capacitance effect in metal-ferroelectric-insulator-semiconductor devices
14:50:00	Exp + SIM	M. Hoffmann	NaMLab	Modeling and Design Considerations for Negative Capacitance Field-Effect Transistors
15:05:00	Discussion			chair: Uwe Schroeder
15:25:00	Break			
Session 4: Thickness Scaling without losing FE properties				
15:55:00	Exp	A. Zenkevich	Moscow IPT	Thickness scaling in Hf _{0.5} Zr _{0.5} O ₂ films: ferroelectricity and transport properties
16:10:00	Exp	U. Boettger	RWTH Aachen	Ferroelectric HfO ₂ films on a micrometer scale
16:25:00	Sim	A. Kersch	UAS Munich	Simulation: Impact of Grains Size on Phase transitions
16:40:00	Discussion			chair: Jacob Jones
Session 5: Epitaxial growth				
17:00:00	Exp	T. Shimizu/Funakubo	TIT Tokyo	Growth of epitaxial orthorhombic doped HfO ₂ thin films
17:15:00	Exp	J. Schubert	FZ Juelich	Epitaxial HfO ₂ on Si substrates
17:30:00	Exp	J. LeBeau	NC State	Phase distributions and local epitaxy of HfO ₂ on TiN: a TEM study
17:45:00	Discussion			chair: Uwe Schroeder
18:00:00	End			
19:00:00	Guided Walking Tour: Historic old town Dresden			