Scientific Publications of Dr. Philipp Plänitz

Sahib, Mortda Mohammed, Plänitz, Philipp, Hackert-Oschätzchen, Matthias, Lerez & Christoph
Condition Monitoring Model Development for Belt Systems Using Hybrid CNN–BiLSTM Deep-Learning Techniques
Machines, 14(3), 2026.
https://doi.org/10.3390/machines14030348

Plänitz, Philipp, Petermann, Richard, Shemchuk, Artem, Majcherek, Sören, Barth, Markus, Hackert-Oschätzchen & Matthias
Concept and prototype of a 3-component extruder for fusion deposition of vibration-damping polymer concrete
Materials Research Proceedings, 2025.
https://doi.org/10.21741/9781644903599-222

Riefer, Arthur, Plänitz, Philipp, Meichsner, Gunnar, Hackert-Oschätzchen & Matthias
Determination of the NaCl electrolyte viscosity from reactive force field molecular dynamics simulations
Procedia CIRP, 2025.
https://doi.org/10.1016/j.procir.2025.02.020

Riefer, Arthur, Hackert-Oschätzchen, Matthias, Plänitz, Philipp, Meichsner & Gunnar
Characterization of iron(III) in aqueous and alkaline environments with ab initio and ReaxFF potentials
Journal of Chemical Physics, 160(8), 2024.
https://doi.org/10.1063/5.0182460

Riefer, A., Hackert-Oschätzchen, M., Plänitz, P., Meichsner & G.
Derivation of parameter sets for the ReaxFF+ method for modeling an electrochemical machining process
Procedia CIRP, 2023.
https://doi.org/10.1016/j.procir.2023.03.040

Lazarevic, F., Leitsmann, R., Drescher, M., Erben, E., Plänitz, P., Schreiber & M.
Nitrogen Engineering in the Ultrathin SiO2 Interface Layer of High-k CMOS Devices: A First-Principles Investigation of Fluorine, Oxygen, and Boron Defect Migration
IEEE Transactions on Electron Devices, 64(12): 5073—5080, 2017.
https://doi.org/10.1109/TED.2017.2766083

Drescher, M., Erben, E., Grass, C., Trentzsch, M., Lazarevic, F., Leitsmann, R., Plänitz, P., McHedlidze, T., Seidel, K., Liske, R., Bartha & J.W.
Reliability characterization in high-k metal gate technology [Charakterisierung der Zuverlässigkeit in der High-k Metal Gate Technologie]
MikroSystemTechnik Kongress 2017 , 2017.

Böhm, O., Pfadenhauer, S., Leitsmann, R., Plänitz, P., Schreiner, E., Schreiber & M.
ReaxFF+-A New Reactive Force Field Method for the Accurate Description of Ionic Systems and Its Application to the Hydrolyzation of Aluminosilicates
Journal of Physical Chemistry C, 120(20): 10849—10856, 2016.
https://doi.org/10.1021/acs.jpcc.6b00720

Leitsmann, R., Lazarevic, F., Nadimi, E., Öttking, R., Plänitz, P., Erben & E.
Charge transition levels of oxygen, lanthanum, and fluorine related defect structures in bulk hafnium dioxide (HfO2): An ab initio investigation
Journal of Applied Physics, 117(24), 2015.
https://doi.org/10.1063/1.4923220

Leitsmann, R., Plänitz, P., Schreiber & M.
In-vitro materials design: Modern atomistic simulation methods for engineers
Wiley-VCH Verlag, 2015.
https://doi.org/10.1002/9783527667352

Leitsmann, R., Böhm, O., Plänitz, P., Schreiber & M.
Generation of reasonable atomic model structures of amorphous materials for atomic scale simulations
Computational and Theoretical Chemistry, 1059: 7—11, 2015.
https://doi.org/10.1016/j.comptc.2015.02.009

Drescher, Maximilian, Naumann, Andreas, Sundqvist, Jonas, Erben, Elke, Grass, Carsten, Trentzsch, Martin, Lazarevic, Florian, Leitsmann, Roman, Plaenitz & Philipp
Fluorine interface treatments within the gate stack for defect passivation in 28nm high-k metal gate technology
Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 33(2), 2015.
https://doi.org/10.1116/1.4913947

Öttking, R., Kupke, S., Nadimi, E., Leitsmann, R., Lazarevic, F., Plänitz, P., Roll, G., Slesazeck, S., Trentzsch, M., Mikolajick & T.
Defect generation and activation processes in HfO2 thin films: Contributions to stress-induced leakage currents
Physica Status Solidi (A) Applications and Materials Science, 212(3): 547—553, 2015.
https://doi.org/10.1002/pssa.201431697

Nadimi, E., Roll, G., Kupke, S., Öttking, R., Plänitz, P., Radehaus, C., Schreiber, M., Agaiby, R., Trentzsch, M., Knebel, S., Slesazeck, S., Mikolajick & T.
The degradation process of high-k SiO2/HfO2 gate-stacks: A combined experimental and first principles investigation
IEEE Transactions on Electron Devices, 61(5): 1278—1283, 2014.
https://doi.org/10.1109/TED.2014.2313229

Leitsmann, R., Planitz, P., Nadimi, E., Ottking & R.
Oxygen related defects and the reliability of high-k dielectric films in FETs
2013 IEEE International Semiconductor Conference Dresden - Grenoble: Technology, Design, Packaging, Simulation and Test, ISCDG 2013, 2013.
https://doi.org/10.1109/ISCDG.2013.6656327

Böhm, O., Leitsmann, R., Plänitz, P., Oszinda, T., Schaller, M., Schreiber & M.
Novel k-restoring scheme for damaged ultra-low-k materials
Microelectronic Engineering, 112: 63—66, 2013.
https://doi.org/10.1016/j.mee.2013.05.017

Leitsmann, R., Böhm, O., Plänitz, Ph., Radehaus, C., Schaller, M., Schreiber & M.
Dissolution of CF-polymer films at ultra low-k surfaces using diluted HF
ECS Journal of Solid State Science and Technology, 1(1): N14—N17, 2012.
https://doi.org/10.1149/2.007201jss

Böhm, O., Leitsmann, R., Plänitz, P., Radehaus, C., Schaller, M., Schreiber & M.
Silylation of silicon bonded hydroxyl groups by silazanes and siloxanes containing an acetoxy group. N-trimethylsilylimidazole vs. dimethyldiacetoxysilane
Computational and Theoretical Chemistry, 991: 44—47, 2012.
https://doi.org/10.1016/j.comptc.2012.03.019

Nadimi, E., Öcttking, R., Plänitz, P., Schreiber, M., Radehaus & C.
First-principles investigation of the leakage current through strained SiO2 gate dielectrics in MOSFETs
IEEE - 2011 Semiconductor Conference Dresden: Technology, Design, Packaging, Simulation and Test, SCD 2011 - International Conference, Workshop and Table-Top Exhibition, 2011.
https://doi.org/10.1109/SCD.2011.6068768

Leitsmann, R., Chicker, F., Plänitz, Ph., Radehaus, C., Kretzer, U., Scheffer-Czygan, M., Eichler & S.
Charge transition levels of boron and silicon impurities in GaAs
IEEE - 2011 Semiconductor Conference Dresden: Technology, Design, Packaging, Simulation and Test, SCD 2011 - International Conference, Workshop and Table-Top Exhibition, 2011.
https://doi.org/10.1109/SCD.2011.6068765

Nadimi, E., Öttking, R., Plänitz, P., Trentzsch, M., Kelwing, T., Carter, R., Schreiber, M., Radehaus & C.
Interaction of oxygen vacancies and lanthanum in Hf-based high-k dielectrics: An ab initio investigation
Journal of Physics Condensed Matter, 23(36), 2011.
https://doi.org/10.1088/0953-8984/23/36/365502

Böhm, O., Leitsmann, R., Plänitz, P., Radehaus, C., Schreiber, M., Schaller & M.
K-restoring processes at carbon depleted ultralow-k surfaces
Journal of Physical Chemistry A, 115(29): 8282—8287, 2011.
https://doi.org/10.1021/jp202851p

Leitsmann, R., Chicker, F., Plänitz, Ph., Radehaus, C., Kretzer, U., Scheffer-Czygan, M., Eichler & S.
Boron-Silicon complex defects in GaAs: An ab initio study
Journal of Applied Physics, 109(6), 2011.
https://doi.org/10.1063/1.3561373

Nadimi, E., Plänitz, P., Öttking, R., Schreiber, M., Radehaus & C.
Single and multiple oxygen vacancies in ultrathin SiO2 gate dielectric and their influence on the leakage current: An ab initio investigation
IEEE Electron Device Letters, 31(8): 881—883, 2010.
https://doi.org/10.1109/LED.2010.2051013

Nadimi, E., Planitz, P., Ottking, R., Wieczorek, K., Radehaus & C.
First principle calculation of the leakage current through SiO2 and SiOxNy gate dielectrics in MOSFETs
IEEE Transactions on Electron Devices, 57(3): 690—695, 2010.
https://doi.org/10.1109/TED.2009.2038646

Leitsmann, R., Böhm, O., Plänitz, Ph., Radehaus, C., Schaller, M., Schreiber & M.
Adsorption mechanisms of fluorocarbon polymers at ultra low-k surfaces
Surface Science, 604(19-20): 1808—1812, 2010.
https://doi.org/10.1016/j.susc.2010.07.011

Abbasi, A., Nadimi, E., Plänitz, P., Radehaus & C.
Density functional study of the adsorption of aspirin on the hydroxylated (0 0 1) ; × V tz surface
Surface Science, 603(16): 2502—2506, 2009.
https://doi.org/10.1016/j.susc.2009.06.004

Martinez-Limia, A., Plänitz, P., Radehaus & C.
Ab initio structural and electronic properties of dangling-bond-free SiOx Ny
Physical Review B - Condensed Matter and Materials Physics, 73(16), 2006.
https://doi.org/10.1103/PhysRevB.73.165213