

Conductance of perovskite oxide thin films and interfaces Mubeen Dildar, I.

Citation

Mubeen Dildar, I. (2013, February 6). *Conductance of perovskite oxide thin films and interfaces. Casimir PhD Series*. Retrieved from https://hdl.handle.net/1887/20501

Version: Not Applicable (or Unknown)

License: License agreement concerning inclusion of doctoral thesis in the

Institutional Repository of the University of Leiden

Downloaded from: https://hdl.handle.net/1887/20501

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle http://hdl.handle.net/1887/20501 holds various files of this Leiden University dissertation.

Author: Mubeen Dildar, Ishrat

Title: Conductance of perovskite oxide thin films and interfaces

Issue Date: 2013-02-06

Curriculum Vitae

Ishrat Mubeen Dildar got her early education from a public school and college. She received her degree in Bachelors of Science (BSc) with majors in Mathematics and Physics in 1998 and Master of Science (MSc) in Physics in 2000 from the University of the Punjab (UP), Lahore, Pakistan. She was appointed as a lecturer in Feb. 2004 at the University of Engineering and Technology (UET), Lahore, Pakistan. In 2005, she completed her Master of Philosophy (MPhil) with a research project entitled "Investigation of silver plasma and surface morphology from a nanosecond laser ablation". She was awarded a scholarship to pursue her studies by the Higher Education Commission, Pakistan in September 2007. She worked in the Laser Center, Free University, Amsterdam as a researcher from September 2007 to May 2008. She joined the Magnetic and Superconducting Materials group (MSM), Leiden University, the Netherlands as a PhD scholar in June 2008. Here, she carried out her research in the area of oxide materials. She was recently promoted to assistant professor at the University of Engineering and Technology, Lahore, Pakistan.

List of publications

- M. Khaleeq-ur-Rahman, M.Z. Butt, Ishrat Mubeen, M.S. Rafique, *Investigation of silver plasma and surface morphology from a nanosecond laser ablation*, Materials Chemistry and Physics **114**, 978-982 (2009).
- E.J. Salumbides, V. Maslinskas, I. M. Dildar, A.L. Wolf, E.-J. van Duijn, K.S.E. Eikema, and W. Ubachs, *High-precision frequency measurement of the 423-nm Ca I line*, Physical Review A 83, 012502 (2011).
- I.M. Dildar, C. Beekman, X. He, and J. Aarts, *Hall Effect measurements on strained and unstrained thin films of La*_{0.7} Ca_{0.3} MnO₃ and La_{0.7} Sr_{0.3} MnO₃, Physical Review B **85**, 205103 (2012).
- I.M. Dildar, D. Boltje, M. Hesselberth, Q. Xu, H. Zandbergen, S. Harkema, and J. Aarts, *Conductivity of LaAlO₃/SrTiO₃ interfaces made by sputter deposition*, e-journal of Surface Science and Nanotechnology **10**, 1 (2012).
- I.M. Dildar, D. Boltje, M. Hesselberth, Q. Xu, H. Zandbergen, S. Harkema, and J. Aarts, *Non-conducting interfaces of sputter grown LaAlO*₃/SrTiO₃ and the role of stoichiometry, submitted to Applied Physics Letters, arXiv:1111.5047v1.
- I.M. Dildar, K. Uhlirova, and J. Aarts, Non-magnetic interfaces of sputter grown $LaAlO_3/SrTiO_3$ and the contribution of the $SrTiO_3$ substrate, in preparation.
- I.M. Dildar, J. Kleibeuker, M. Neklyudova, Q. Xu, H. Zandbergen, and J. Aarts, Stoichiometry of LaAlO₃/SrTiO₃ films grown in high pressure sputtering and pulsed laser deposition technique, in preparation.
- I.M. Dildar, M. Neklyudova, Q. Xu, H. Zandbergen, J. Kleibeuker, S. Harkema, and J. Aarts, A complete characterization of LaAlO₃/SrTiO₃ interfaces and films grown by sputter deposition, in preparation.

- I.M. Dildar, M. Hesselberth, and J. Aarts, Mesoscopic transport in thin films of $La_{0.7}Sr_{0.3}MnO_3$, in preparation.
- I.M. Dildar, D. Boltje, M. Hesselberth, and J. Aarts, Avoiding target degradation in thin films of $La_{0.7}Ca_{0.3}MnO_3$, in preparation.

Acknowledgments

At the end of this dissertation, I am very glad to acknowledge all those without whom this could not be possible. I am thankful to the Higher Education Commission (HEC) Pakistan to award me a scholarship and to the University of Engineering and Technology (UET), Lahore, Pakistan to grant me study leave to further my career. I wish to thank the Leiden Institute of Physics (LION) and the 'Stichting voor Fundamental Onderzoek der Materie' (FOM) for partially funding this project.

Well-deserved thanks go to my promotor Prof. dr. Jan Aarts for starting me off in the field of material sciences. His support and interest in my project, and the discussions we had, helped much in my motivation for the research.

I am greatly indebted to Prof. dr. M. Khaleeq-ur-Rahman (former chairman of the Physics Department UET, Lahore, Pakistan and Vice Chancellor, G.C. University, Lahore, Pakistan) for his strong support for me and my career. He initiated my interest in research, first as a student, and then as a colleague. He taught me much, and was always there when I needed to discuss a problem.

In the MSM group I met very helpful people. Christianne Beekman, who was my predecessor in the field of oxides, provided me with a strong base and the confidence that I would be able to finish my work in time. The technical skills of Marcel Hesselberth, as well as his conceptual approach and patient explanations inspired me a lot. Federica Galli gave me much time and support, whenever I needed it, and discussions with her proved very useful, not to mention the shared Italian-Pakistani food recipes. Stefano Voltan selflessly assisted in some of the experimental work.

My research work could not be completed without the fruitful collaborations with Prof. dr. Henny Zandbergen, Dr. Qiang Xu and Maria Neklyudova from Delft University on TEM, EELS and EDX measurements. I am grateful for the kind cooperation and concern of Dr. Sybolt Harkema from Twente University

in performing XRD and RSM measurements. Thanks to Dr. Josee Kleibeuker from Twente University for providing samples and XPS measurements. I am also thankful for the technical help provided by Daan Boltje (on the oxide system, and with XRR and XRD), by Christian Pen (for technical and mechanical issues) and by Ruud Kuyvenhoven (helping with computer issues).

I am also thankful to my Pakistani friends Saima, Sadia, Afsheen, Faiza and Zakia for their moral support.

I have no words to express my feelings for the love and support of my mother. This thesis is dedicated to her courage. She set high goals for me and never compromised on it. I am thankful to my sisters, brother, nieces and nephews for their unconditional love.

Thanks again to all for making my life successful and beautiful.