Visualizing strongly-correlated electrons with a novel scanning tunneling microscope

Battisti, I.

Publications

1. **I. Battisti***, K.M. Bastiaans*, V. Fedoseev, A. de la Torre, N. Iliopoulos, A. Tamai, E.C. Hunter, R.S. Perry, J. Zaanen, F. Baumberger, M.P. Allan, 'Universality of pseudogap and emergent order in lightly doped Mott insulators', *Nat. Phys.* **13**, 21 (2017).

2. **I. Battisti**, V. Fedoseev, K.M. Bastiaans, A. de la Torre, R.S. Perry, F. Baumberger, M.P. Allan, 'Poor electronic screening in lightly doped Mott insulators observed with scanning tunneling microscopy', *Phys. Rev. B* **95**, 235141 (2017).

3. M. Leeuwenhoek, R.A. Norte, K.M. Bastiaans, D. Cho, **I. Battisti**, Y.M. Blanter, S. Gröblacher, M.P. Allan, 'Nanofabricated tips as a platform for double-tip and device based scanning tunneling microscopy', *submitted*, arXiv: 1712.08620.

4. K.M. Bastiaans*, D. Cho*, T. Benschop, **I. Battisti**, Y. Huang, M.S. Golden, Q. Dong, Y. Jin, J. Zaanen, M.P. Allan, 'Charge trapping and super-Poissonian noise centres in a cuprate superconductor', *Nat. Phys.* **14**, 1183 (2018).

5. **I. Battisti**, G. Verdoes, K. van Oosten, K.M. Bastiaans, M.P. Allan, 'Definition of design guidelines, construction, and performance of an ultra-stable scanning tunneling microscope for spectroscopic imaging', *Rev. Sci. Instr.* **89**, 123705 (2018).

6. **I. Battisti**, W. Tromp, R.S. Perry, A. Tamai, F. Baumberger, A.P. Mackenzie, M.P. Allan, 'Comparing spectroscopic techniques for band structure determination on the correlated metal Sr_2RhO_4', *in preparation.*

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Curriculum Vitae

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09.2004 - 06.2009	High School *Liceo Scientifico Copernico*, Verona, Italy
10.2009 - 07.2012	Bachelor of Science in Physics *Padova University*, Padova, Italy Graduation project: "Stochastic models in ecology" under the supervision of Prof. dr. A. Maritan.
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Half of my time as a PhD student has been devoted to the construction of our home-built microscope *Dome*. Its development would not have been possible without the contribution of many different people. Gijsbert Verdoes and Kees van Oosten have played a major role, and it is mostly thanks to their expertise and outstanding capabilities that *Dome* smoothly came to be. I am grateful for the passion and time they put into this project, and for the mutual trust we always felt. Additionally, I want to acknowledge all the FMD and ELD members who, in different ways, contributed to the construction of the microscope: Martijn Witlox, Tristan van Klingeren, Emiel Wiegers, Doortje Oosterlee, Freek Groenewoud, Raymond Koehler, Ko Koning, Peter Veldhuizen and Bert Crama. Wilfred van der Geest always provided us with liquid helium, even when bad planning resulted in emergency needs.

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