Curriculum vitae

Barinov Alexey

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Personal Data

Date and 12.03.1975

Place of birthRyazan, Russia

Nationality Russian, Italian

Education and working experience

Apr. 2008 – now	Coordinator of Spectromicroscopy beamline at ELETTRA , Sincrotrone Trieste http://www.elettra.trieste.it/elettra-beamlines/spectromicroscopy.html
Feb 2002 – Mar 2008	Beamline scientist at ESCA microscopy beam line of ELETTRA
October 24, 2001	Ph.D. on Condensed Matter Physics at RRC Kurchatov Institute on the subject “Photoemission microscopy of Metal/GaN interfaces”.
July 2000 - Dec 2001	Fellowship under the grant EW14, Sincrotrone, Trieste
Feb 1999 - June 2000	Fellowship “Formazione personale su linee di luce, stazioni sperimentali” Legge 212/92. Sincrotrone, Trieste
July 1998 - Sept 2001	Post graduate courses at Moscow Institute of Physics and Technology
June 1998	Diploma in Physics at Moscow Institute of Physics and Technology (*summa cum laud*e)
Sept 1995-June 1998	Diploma research work “Optical investigations of fluorinated

	fullerenes" and specialization in the Department of Condenced Matter Physics of RRC Kurchatov Institute
Sept 1992-June 1998	Study at Moscow Institute of Physics and Technology at the Department of General and Applied Physics

Professional experience

Angle resolved photoemission; photoemission microscopy; assistance in experiments of users working in different fields of surface and material science; programming in LavView, LUA, IgorPro; electronic optics simulations.

Current research interests

2D materials, electronic structure, novel microscopies

Languages

Russian - mother tongue

English - fluent

Italian - fluent

Articles in journals

1. Niloufar Nilforoushan, Michele Casula, Adriano Amaricci, Marco Caputo, Jonathan Caillaux, Lama Khalil, Evangelos Papalazarou, Pascal Simon, Luca Perfetti, Ivana Vobornik, Pranab Kumar Das, Jun Fujii, Alexei Barinov, David Santos-Cottin, Yannick Klein, Michele Fabrizio, Andrea Gauzzi, Marino Marsi "Moving Dirac nodes by chemical substitution" **PNAS 118** (33) e2108617118 (2021)
2. Ryoya Matsumoto, Naurang L Saini, Alessio Giampietri, Viktor Kandyba, Alexey Barinov, Rajveer Jha, Ryuji Higashinaka, Tatsuma D Matsuda, Yuji Aoki, Takashi Mizokawa "Surface Electronic States and Inclining Surfaces in $MoTe_2$ Probed by Photoemission Spectromicroscopy" **J. Phys. Soc. Jpn. 90**, 084704 (2021)
3. YW Li, HJ Zheng, YQ Fang, DQ Zhang, YJ Chen, C Chen, AJ Liang, WJ Shi, D Pei, LX Xu, S Liu, J Pan, DH Lu, M Hashimoto, A Barinov, SW Jung, C Cacho, MX Wang, Y He, L Fu, HJ Zhang, FQ Huang, LX Yang, ZK Liu, YL Chen "Observation of topological superconductivity in a stoichiometric transition metal dichalcogenide 2M-WS_2" **Nature Communications 12**, 2874 (2021)
4. Yu Matsuzawa, Tomohiro Morita, Masashi Arita, Alessio Giampietri, Viktor Kandyba, Alexey Barinov, Akira Takahashi, Yusuke Nagakubo, Tadashi Adachi, Yoji Koike, Atsushi Fujimori, Naurang L Saini, Takashi Mizokawa "Fermi Surface Geometry and Inhomogeneous Electronic States in $Pr_{1.3-x}La_{0.7}Ce_xCuO_4$ (x = 0.05) with Small Superconducting Volume Fraction" **J. Phys. Soc. Jpn. 90**, 054704 (2021)
5. Ryo Noguchi, Masaru Kobayashi, Zhanzhi Jiang, Kenta Kuroda, Takanari Takahashi, Zifan Xu, Daehun Lee, Motoaki Hirayama, Masayuki Ochi, Tetsuroh Shirasawa, Peng Zhang, Chun Lin, Cédric Bareille, Shunsuke Sakuragi, Hiroaki Tanaka, So Kunisada, Kifu Kurokawa, Koichiro Yaji, Ayumi Harasawa, Viktor Kandyba, Alessio Giampietri, Alexei Barinov, Timur K Kim, Cephise Cacho, Makoto Hashimoto, Donghui Lu, Shik Shin, Ryotaro Arita, Keji Lai, Takao Sasagawa, Takeshi Kondo "Evidence for a higher-order topological insulator in a three-dimensional material built from van der Waals stacking of bismuth-halide chains" **Nature Materials 20**, 473–479 (2021)
6. Xue Xia, Siow Mean Loh, Jacob Viner, Natalie C Teutsch, Abigail J Graham, Viktor Kandyba, Alexei Barinov, Ana M Sanchez, David C Smith, Nicholas DM Hine, Neil R Wilson "Atomic and electronic structure of two-dimensional Mo (1− x) W x S2 alloys" **J. Phys. Mater. 4** 025004 (2021)
7. Yujie Chen, Juan Jiang, Haifeng Yang, Pavel Dudin, Alexey Barinov, Zhongkai Liu, Haihu Wen, Lexian Yang, Yulin Chen "Visualization of the electronic phase separation in superconducting $K_x Fe_{2-y} Se_2$" **Nano Research 14**, 823–828 (2021)
8. Simone Lisi, Xiaobo Lu, Tjerk Benschop, Tobias A de Jong, Petr Stepanov, Jose R Duran, Florian Margot, Irène Cucchi, Edoardo Cappelli, Andrew Hunter, Anna Tamai, Viktor Kandyba, Alessio Giampietri, Alexei Barinov, Johannes Jobst, Vincent Stalman, Maarten Leeuwenhoek, Kenji Watanabe, Takashi Taniguchi, Louk Rademaker, Sense Jan van der Molen, Milan P Allan, Dmitri K Efetov, Felix Baumberger "Observation of flat bands in twisted bilayer graphene" **Nature Physics 17**, 189–193 (2021)
9. Peng Zhang, Ryo Noguchi, Kenta Kuroda, Chun Lin, Kaishu Kawaguchi, Koichiro Yaji, Ayumi Harasawa, Mikk Lippmaa, Simin Nie, Hongming Weng, V Kandyba, A Giampietri, A Barinov, Qiang Li, GD Gu, Shik Shin, Takeshi Kondo "Observation and control of the weak topological insulator state in $ZrTe_5$" **Nature Communications 12**,

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10. Cheng Chen, Aiji Liang, Shuai Liu, Simin Nie, Junwei Huang, Meixiao Wang, Yiwei Li, Ding Pei, Haifeng Yang, Huijun Zheng, Yong Zhang, Donghui Lu, Makoto Hashimoto, Alexei Barinov, Chris Jozwiak, Aaron Bostwick, Eli Rotenberg, Xufeng Kou, Lexian Yang, Yanfeng Guo, Zhijun Wang, Hongtao Yuan, Zhongkai Liu, Yulin Chen "Observation of topological electronic structure in quasi-1D superconductor TaSe3" **Matter 3**, 2055-2065 (2020)
11. Abigail J Graham, Johanna Zultak, Matthew J Hamer, Viktor Zolyomi, Samuel Magorrian, Alexei Barinov, Viktor Kandyba, Alessio Giampietri, Andrea Locatelli, Francesca Genuzio, Natalie C Teutsch, Cuauhtémoc Salazar, Nicholas DM Hine, Vladimir I Fal'ko, Roman V Gorbachev, Neil R Wilson "Ghost anti-crossings caused by interlayer umklapp hybridization of bands in 2D heterostructures" **2D Materials 8**, 015016 (2020)
12. JJP Thompson, D Pei, H Peng, H Wang, N Channa, HL Peng, A Barinov, NBM Schröter, Y Chen, M Mucha-Kruczyński "Determination of interatomic coupling between two-dimensional crystals using angle-resolved photoemission spectroscopy" **Nature Communications 11**, 3582 (2020)
13. Astrid Weston, Yichao Zou, Vladimir Enaldiev, Alex Summerfield, Nicholas Clark, Viktor Zólyomi, Abigail Graham, Celal Yelgel, Samuel Magorrian, Mingwei Zhou, Johanna Zultak, David Hopkinson, Alexei Barinov, Thomas H Bointon, Andrey Kretinin, Neil R Wilson, Peter H Beton, Vladimir I Fal'ko, Sarah J Haigh, Roman Gorbachev "Atomic reconstruction in twisted bilayers of transition metal dichalcogenides" **Nature Nanotechnology 15**, 592–597 (2020)
14. Chengwei Wang, Meixiao Wang, Juan Jiang, Haifeng Yang, Lexian Yang, Wujun Shi, Xiaofang Lai, Sung-Kwan Mo, Alexei Barinov, Binghai Yan, Zhi Liu, Fuqiang Huang, Jinfeng Jia, Zhongkai Liu, Yulin Chen "Electronic structure and spatial inhomogeneity of iron-based superconductor FeS" **Chinese Physics B 29**, 047401 (2020)
15. Matteo Amati, Alexei Barinov, Luca Gregoratti, Hikmet Sezen, Maya Kiskinova "Scanning Photoelectron Microscopy: Past, Present and Future" Springer Handbook of Surface Science 427-448 (2020)
16. Nguyen Paul V., Teutsch Natalie C., Wilson Nathan P., Kahn Joshua, Xia Xue, Graham Abigail J., Kandyba Viktor, Giampietri Alessio, Barinov Alexei, Constantinescu Gabriel C., Yeung Nelson, Hine Nicholas D. M., Xu Xiaodong, Cobden David H., Wilson Neil R. **"**Visualizing electrostatic gating effects in two-dimensional heterostructures" **Nature 572**, 220-223 (2019)
17. S Dash, H Enomoto, T Kajita, K Ono, K Horiba, M Kobayashi, H Kumigashira, V Kandyba, A Giampietri, A Barinov, F Stramaglia, NL Saini, T Katsufuji, T Mizokawa Temperature-dependent evolution of Ti3d spectral features at surface of $Ba_xTi_8O_{16+\delta}$ **Phys Rev B 100**, 125153 (2019)
18. T Sugimoto, E Paris, K Terashima, A Barinov, A Giampietri, Takanori Wakita, Takayoshi Yokoya, J Kajitani, R Higashinaka, TD Matsuda, Y Aoki, T Mizokawa, NL Saini, "Inhomogeneous charge distribution in a self-doped $EuFBiS_2$ superconductor", **Phys. Rev. B 100**, 064520 (2019)
19. Ryo Noguchi, T Takahashi, K Kuroda, M Ochi, T Shirasawa, M Sakano, C Bareille, M Nakayama, MD Watson, K Yaji, A Harasawa, H Iwasawa, P Dudin, TK Kim, M Hoesch, V Kandyba, A Giampietri, A Barinov, S Shin, R Arita, T Sasagawa, Takeshi Kondo "A weak topological insulator state in quasi-one-dimensional bismuth iodide", **Nature 566**,

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20. Matthew J Hamer, Johanna Zultak, Anastasia V Tyurnina, Viktor Zólyomi, Daniel Terry, Alexei Barinov, Alistair Garner, Jack Donoghue, Aidan P Rooney, Viktor Kandyba, Alessio Giampietri, Abigail Graham, Natalie Teutsch, Xue Xia, Maciej Koperski, Sarah J Haigh, Vladimir I Fal'ko, Roman V Gorbachev, Neil R Wilson "Indirect to Direct Gap Crossover in Two-Dimensional InSe Revealed by Angle-Resolved Photoemission Spectroscopy" **ACS nano 13**, 2136-2142 (2019)
21. Viktor Kandyba, Abdullah Al-Mahboob, Alessio Giampietri, Jerzy T Sadowski, Alexei Barinov "Tuning electronic properties by oxidation-reduction reactions at graphene-ruthenium interface" **Carbon 138**, 271-276 (2018).
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Bi-and Multilayer Graphene**" Adv. Materials 29**, 1606741 (2017)
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interface", **Appl. Phys. Lett. 79** (17), 2752-2754, (2001).

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Other articles

Barinov A., book review ('Solid State Photoemission and Related Methods' eds. W. Schattke and M. Van Hove) **ChemPhysChem 10**, 1631, (2004)

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Participation in conferences

1. **A.Barinov**, “Angle resolved photoemission spectromicroscopy for addressing electronic structure of microscopic complex 2D materials”, **E-MRS fall meeting**, Warsaw Poland, 18-21 Sept.2017, **invited talk**
2. **A.Barinov**, “Graphene research at Spectromicroscopy beamline of Elettra”, Electronic structure of 2D materials: theory meets experiment, **Diamond light source**, UK, 18,19 July 2017, **invited talk**
3. **A. Barinov**, "Spectromicroscopy beamline @ Elettra: what it is like to perform photoemission experiments from sub-micrometer spot**", S2ARPES**, Shanghai Tec. Univ. 27-28 January 2015, **invited talk**
4. **A. Brinov**, "Scanning micro-ARPES @Elettra and its applications", **SPEM-2014**, Diamond Light Source, UK, 20-21 March 2014, **invited talk**
5. **A. Barinov**, "Beyond angle resolved photoemission spectroscopy - spatial and temporal resolution for high frequency pulsed photon sources", **Synchrotron Radiation Instrumentation 2013. Workshop: Photoemission Spectroscopy: the Upcoming Decades**, Washington D.C., USA 18 June 2013, **invited talk**
6. **A. Barinov**, “Angle resolved photoemission spectromicroscopy and its applications for advanced materials study”, **Science @CERIC**, Trieste, Italy 11-12 Dec 2012, **invited talk**
7. **A. Barinov**, “Electronic structure from small scale with scanning angle resolved photoemission microscopy tool”, **Nano TP MP0901 Scientific meeting “Designing novel materials for nanodevices: from theory to practice”**, Trieste, Italy 9-11 Nov 2011, **invited talk**
8. **A. Barinov**, “Micro-ARPES at SPECTROmicroscopy-3.2L beamline of Elettra”, **SPEM-2010**, Trieste, Italy 13-14 Dec. 2010 **invited talk**
9. **A. Barinov**, “Scanning photoemission imaging and spectromicroscopy at Elettra: current status, upgrades and studies of nanostructured materials**”, Italian-Australian Workshop “Photons for medicine and material science”**, 19-21 Feb., 2010, Melbourne, Australia **invited talk**

10. **A. Barinov** “Scanning photoelectron microscopy: present status, upgrades and applications in studies of nanostructures materials”, Russian –Italian Workshop on Synchrotron radiation, Moscow 11 Dec, 2009, **invited talk**
11. **A. Barinov,** L. Gregoratti, L. Aballe, P.Dudin, and M. Kiskinova, “Diffusion and atomic arrangement of metals on the surface of multiwall carbon nanotubes”, ECOSS 23 - European Conference on Surface Science, Berlin (Germany), September 4-9, 2005, **poster**.
12. L. Aballe, **A. Barinov**, A. Locatelli, S. Heun, M. Kiskinova, “Tuning surface reactivity via electron quantum confinement”, ECOSS 23 - European Conference on Surface Science, Berlin (Germany), September 4-9, 2005, **invited talk**
13. **A. Barinov,** E. Lutsenko, V. Pavlovskii, V. Zubialevich, L. Gregoratti, L. Aballe, G. Yablonskii, M. Kiskinova, B. Schineller, and M. Heuken, “Cross-sectional photoelectron spectromicroscopy measurements of quantum dimensional AlGaN/GaN heterostructures: spatially resolved band structure mapping”, PLMCN4 (International conference on physics of light matter coupling in nanostructures), St. Petersburg, Russia, 29June - 3 July 2004 . **invited poster**.

14. **A. Barinov,** L. Casalis, L. Gregoratti, B. Kaulich and M. Kiskinova, "Photoemission microscopy of spatially defined metal/GaN interfaces", International Workshop on Nitride Semiconductors, 22-25 July 2002, Aachen, Germany, **oral**.
15. A**. Barinov,** L. Casalis, L. Gregoratti, B. Kaulich and M. Kiskinova, "Photoemission microscopy of spatially defined metal/GaN interfaces", 11th International Conference on Solid Films and Surfaces, 8-12 July 2002, Marseille, France, **oral**.
16. **A. Barinov,** L. Casalis, L. Gregoratti, B. Kaulich and M. Kiskinova, "Morphology, chemistry and electronic properties of metal/n-GaN interfaces", International conference on X-Ray optics and microanalisis XVI, Viene, July 2-6, 2001, Austria, **oral**.
17. **A. Barinov,** L. Casalis, L. Gregoratti, B. Kaulich and M. Kiskinova, "Formation stages and thermal stability of metal/n-GaN interface", 1st International Workshop on Nano-scale Spectroscopy and its Applications to Semiconductor Research, December 11-14, 2000, Trieste, Italy, **oral**.
18. **A. Barinov,** L. Casalis, L. Gregoratti, B. Kaulich and M. Kiskinova "Defect-induced lateral heterogeneity at metal/ n-GaN interfaces and its effect on Schottky barrier height"VUV13, Trieste 2001, **poster**.
19. **A. Barinov,** L. Casalis, L. Gregoratti, B. Kaulich and M. Kiskinova "Morphology, chemistry and electronic properties of metal/GaN interfaces" Elettra Users Meeting 2000 **poster**.

Participation in schools and seminars:

Oct. 2016 Shanghai Tech seminar "Spectromicroscopy beamline @ Elettra: current and future applications**"**

May. 2006Lecture at Synchrotron Radiation School, ICTP, "Scanning photoelectron spectromicroscopy".

Feb. 2005FHI Berlin, seminar, "Oscillations of oxidation rate of thin epitaxial Mg films grown on W(110)".

Mar. 2004, 2005, 2006 Practical exercises at ESCAmicroscopy with students of HERCULES school.

Project reviewer activities:

1. Open Call for Industry Driven Research, for Central Finance and Contracting Agency (CFCA) of Latvia, **2018 – 4 projects evaluated**
2. "SIR 2014 (Scientific Independence of young Researchers" of Italian Ministry for Education, University and Research, **2014 – 4 projects evaluated**
3. Partnership Programme - Joint Applied Research Projects - PCCA 2011 for National

Council for Research and Development of Romania, **2011 – 10 projects evaluated**