

Quantum materials processed by non-equilibrium methods

Fri, 2016-10-07 11:10 - [Shengqiang Zhou](#) [1] Website: www.hzdr.de/fwim [2]

Research Type: Experiment

Quantum materials processed by non-equilibrium methods

A. Research topics

- **Si/Ge-based superconducting circuits**
- **Defect engineering in SiC for quantum spintronics**
- **Nanostructures for single photon emitters and receivers**
- **Chalcogen-hyperdoped nanowires for quantum sensors**

B. Non-equilibrium methods

- **Thermal processing by millisecond flash lamp or nanosecond pulsed laser**
- **Energetic particle irradiation using ions/electrons**
- **Isotopically pure doping by ion implantation**

Publications

1. T. Herrmannsdörfer, V. Heera, O. Ignatchik, M. Uhlarz, A. Mücklich, M. Posselt, H. Reuther, B. Schmidt, K.-H. Heinig, W. Skorupa, M. Voelskow, C. Wündisch, R. Skrotzki, M. Helm, J. Wosnitza
Superconducting State in a Gallium-Doped Germanium Layer at Low Temperatures
Physical Review Letters 102, 217003 (2009)
2. V. Heera, J. Fiedler, R. Hübner, B. Schmidt, M. Voelskow, W. Skorupa, R. Skrotzki, T. Herrmannsdörfer, J. Wosnitza, M. Helm
Silicon Films with Gallium Rich Nanograins - from Superconductor to Insulator
New Journal of Physics 15, 083022 (2013)
3. Y. Wang, Y. Liu, G. Wang, W. Anwand, C. A. Jenkins, E. Arenholz, F. Munnik, O. Gordan, G. Salvan, D. Zahn, X. Chen, S. Gemming, M. Helm, S. Zhou
Carbon p Electron Ferromagnetism in Silicon Carbide
Scientific Reports 5, 8999 (2015)
4. S. Prucnal, M. Glaser, A. Lugstein, E. Bertagnolli, M. Stöger-Pollach, S. Zhou, M. Helm, D. Reichel, L. Rebohle, M. Turek, J. Zuk, and W. Skorupa
III-V semiconductor nanocrystal formation in silicon nanowires via liquid-phase epitaxy
Nano Res. 7, 1769 (2014)
5. M. Glaser, A. Kitzler, A. Johannes, S. Prucnal, H. Potts, S. Conesa-Boj, L. Filipovic, H. Kosina, W. Skorupa, E. Bertagnolli, C. Ronning, A. Fontcuberta i Morral, and A. Lugstein
Synthesis, Morphological, and Electro-optical Characterizations of Metal/Semiconductor Nanowire Heterostructures
Nano Letters 16, 3507-3513 (2016)

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Location

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Dresden 01328 Germany
51° 3' 41.382" N, 13° 57' 8.7732" E
See map: [Google Maps](#) [3]

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[3] <http://maps.google.com?q=Bautzner+Landstrasse+400%2C+01328%2C+Dresden%2C+de>