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Title: Experimental study and simulations of lithographic parameters of e-beam resists HSQ and CSAR62.
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Project type and No: project of the bilateral cooperation, APVV SK-BG-2013-0030
Principal investigator: I. Kostič
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Annotation

Presented results have been achieved in the field of optimalization and application of the direct-writing electron beam lithography in the fabrication of structures for R&D of sensors. For this purpose, it was necessary to gain lithographic process parameters from experiments and to use those parameters for simulation of resulting structures in electron beam resist after exposure and development.

Investigation of lithographic characteristics of two electron beam perspective resists – a negative electron beam resist HSQ XR-1541 and a positive electron beam resist AR-P 6200/2 (CSAR62) at electron energy 20, 30 and 40 keV, respectively, have been performed.

Original results:

- Simulation of HSQ resist profile on silicon substrate and analysis of the resist profile dependence on the exposure dose at electron energy 30 keV.
- Simulation of proximity parameters for HSQ and CSAR62 electron beam resists on silicon substrate at electron energies 30 and 40 keV.

Simulation of proximity parameters for HSQ electron beam resists on GaAs substrate at electron energy 40 keV.

Scientometric outputs:

ANDOK, Róbert - BENČUROVÁ, Anna - VUTOVA, Katia - KOLEVA, Elena - NEMEC, Pavel - HRKÚT, Pavol - KOSTIČ, Ivan - MLADENOV, Georgy. Study of the new CSAR62 positive tone electron-beam resist at 40 keV electron energy. In Journal of Physics: Conference Series, 2016, vol. 700, art. no. 012030. (2016 - SCOPUS, WOS). ISSN 1742-6588. Typ: ADMB

BENČUROVÁ, Anna - VUTOVA, Katia - KOLEVA, Elena - KOSTIČ, Ivan - KONEČNÍKOVÁ, Anna - RITOMSKÝ, Adrian - MLADENOV, Georgy. Resist characteristics simulation of HSQ electron beam resist. In Electrotechnica & electronica E+E, 2016, vol. 51, no. 5-6, p. 246-250. ISSN 0861-4717. Typ: ADEB

ANDOK, Róbert - ŠKRINIAROVÁ, J. - NEMEC, Pavol - BENČUROVÁ, Anna.
Performance of the XR 1541 negative e-beam resist in the e-beam lithography for chosen substrate materials. In Electrotechnica & electronica E+E, 2016, vol. 51, no. 5-6, p. 240-245. ISSN 0861-4717. Typ: ADEB

KOSTIČ, Ivan - VUTOVA, Katia - KOLEVA, Elena - ANDOK, Róbert - BENČUROVÁ, Anna - KONEČNÍKOVÁ, Anna - MLADENOV, Georgy. Study on polymers with implementationin electron beam lithography. In Polymer Science: Research advances, practical applications and educational aspects. - Spain : Formatex Research Center, 2016, polymer Science Book Serie No. 1, p. 488-497. ISBN 978-84-942134-8-9. Typ: AECA

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Posters on international conferences
ANDOK, R., BENČUROVÁ, A., KOSTIČ, I., RITOMSKÝ, A., Skriniarova J., VUTOVA, K. Study of negative electron beam nanoresist HSQ on GaAs substrate. In ASDAM 2016: the 11th International Conference on Advanced Semiconductor Devices and Microsystems. Smolenice, 13.-16.11.2016. AFL (Poster)

P. DURINA, A. BENCUROVA, M. TRUCHLY, R. ANDOK, I. KOSTIC, B. GRANCIC, A. PLECENIK, P. KUS, K. VUTOVA, E. KOLEVA. Simple patterning method of sub-micro- and nanometer structures for gas sensor. In ASDAM 2016: the 11th International Conference on Advanced Semiconductor Devices and Microsystems. Smolenice, 13.-16.11.2016. AFL (Poster)

ANDOK, Róbert - ŠKRINIAROVÁ, J. - NEMEC, Pavol - BENČUROVÁ, Anna. Performance of the XR 1541 negative e-beam resist in the e-beam lithography for chosen substrate materials. In 12th International Conference on Electron Beam Technologies vo Varne: EBT 2016. - Varna: Institute of Electronics, Bulgarian Academy of Sciences, 2016. Typ: AFK (Poster)

BENČUROVÁ, Anna - VUTOVA, Katia - KOLEVA, Elena - KOSTIČ, Ivan - KONEČNÍKOVÁ, Anna - RITOMSKÝ, Adrian - MLADENOV, Georgy. Resist characteristics simulation of HSQ electron beam resist. In 12th International Conference on Electron Beam Technologies vo Varne: EBT 2016. - Varna: Institute of Electronics, Bulgarian Academy of Sciences, 2016. Typ: AFK (Poster)