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The deconvolution of complex spectra by artificial immune system

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Abstract

© Published under licence by IOP Publishing Ltd. An application of the artificial immune system method for decomposition of complex spectra is presented. The results of decomposition of the model contour consisting of three components, Gaussian contours, are demonstrated. The method of artificial immune system is an optimization method, which is based on the behaviour of the immune system and refers to modern methods of search for the engine optimization.

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References

- [1] Karpenko A P 2014 Nature-inspired optimization algorithms (Moscow: Bauman MSTU Press) Modern algorithms of search engine optimization 446 in Russian
- [2] Yagfarov R R, Sibgatullin M E, Galimullin D Z, Kamalova D I and Salakhov M Kh 2016 Deconvolution of complex spectra into components by the bee swarm algorithm J. Phys.: Conf. Series 714
- [3] Kamalova D I, Galimullin D Z, Sibgatullin M E, Shaymuhametova M E and Salakhov M Kh 2013 Separation of closely located Fourier transform Fourier bands by means of a genetic algorithm Optics and Spectroscopy 114 44-50 in Russian
- [4] Kushnir N V, Kushnir A V, Anatskaya Ye V, Katysheva P A and Ustinov K G 2015 Artificial immune systems: overview and current state Scientific works of KubSTU 12 1-10
- [5] Karpenko A P and Shurov D L 2012 Science and Education 8 (Moscow: Scientific Publication of BMSTU) Hybrid method of global optimization based on the artificial immune system 339-378 in Russian
- [6] Geri M and Dzhonson D 1979 Computers and Intractability: A Guide to the Theory of NP Completeness. A Series of Books in the Mathematical Sciences (San Francisco, Calif.: W. H. Freeman and Co) 338
- [7] Attetkov A V, Galkin S V and Zarubin V S 2001 Optimization methods: Textbook for High Schools (Moscow: Bauman MSTU Press) 439 in Russian