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Artificial intelligence guided search for van der Waals materials with high optical anisotropy

Liudmila A. Bereznikova, Ivan A. Kruglov, Georgy A. Ermolaev, Ivan Trofimov, Congwei Xie,

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Optical Properties of Biaxial van der Waals Crystals for Photonic Applications

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A. Vyshnevyy, D. Yakubovsky, S. Novikov, D. Ghazaryan, A. Arsenin, V. Volkov

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In-Plane Directional MoS₂ Emitter Employing Dielectric Nanowire Cavity

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Germanium disulfide as an alternative high refractive index and transparent material for UV-visible nanophotonics

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Exploring van der Waals materials with high anisotropy: geometrical and optical approaches

Aleksandr S Slavich, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Adilet N Toksumakov,

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Crystallinity as a factor of SERS stability of silver nanoparticles formed by Ar⁺ irradiation

Aleksey V. Arsenin, Valentyn S. Volkov, Natalia V. Doroshina, Oleg A. Streletskiy, Ilya A. Zavidovskiy, Mikhail K. Tatmyshevskiy, Gleb I. Tselikov, Olesya O. Kapitanova, Alexander V. Syuy, Roman Romanov, Prabhask Mishra, Vjaceslavs Bobrovs, Andrey M. Markeev, Dmitry I. Yakubovsky, Irina A. Veselova, Sergey M. Novikov
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Laser-synthesized TiN-based nanoparticles as novel efficient electrostatic nanosorbent for environmental water cleaning

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Bulletin of the Russian Academy of Sciences: Physics 2023 S453-S457

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Hexagonal boron nitride nanophotonics: a record-breaking material for the ultraviolet and visible spectral ranges

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Self-assembled photonic structure: a Ga optical antenna on GaP nanowires

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MA Anikina, A Kuznetsov, AN Toksumakov, VV Dremov, DA Ghazaryan, VV Fedorov, AV Arsenin, VS Volkov, AD Bolshakov

St. Petersburg State Polytechnical University Journal: Physics and Mathematics 2023 3.2

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Temperature-dependent Raman spectroscopy and thermal conductivity of TiS₂ hexagonal nanodiscs

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High-refractive index and mechanically cleavable non-van der Waals InGaS₃

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Broadband optical and terahertz properties of 1D van der Waals heteronanotubes

Maria G. Burdanova, Yongjia Zheng, Maksim I. Paukov, Georgy A. Ermolaev, Gennady A. Komandin, Davit Ghazaryan, Sergey Novikov, Rong Xiang, Shohei Chiashi, Shigeo Maruyama, James Lloyd-Hughes, Alexey V. Arsenin, Valentin Volkov

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