

**Федеральное государственное бюджетное учреждение науки Институт синтетических полимерных материалов им. Н.С. Ениколопова  
Российской академии наук**

**Центр исследования полимеров**

**Перечень публикаций, подготовленных по результатам работ, выполненных с использованием научного оборудования ЦКП  
за 2020 год**

№ п/п	ID	Вид публикации	Наименование публикации	DOI публикации	Автор(ы)	Издание, номер, год	ISSN / ISBN издания	Индексация издания	Краткое описание научных результатов, полученных на оборудовании ЦКП	Наличие в публикации ссылки на ЦКП	Страница, содержащая ссылку на ЦКП
1	1A	2	3	4	5	6	7	8	9	10	11
1.	1873763	Статья в научном журнале	Amphiphilic molecular brushes with regular polydimethylsiloxane backbone and poly-2-isopropyl-2-oxazoline side chains. 1. Synthesis, characterization and conformation in solution	10.1016/j.eurpolymj.2020.110035	Serafim Rodchenko, Alina Amirova, Sergey Milenin, Aleksei Ryzhkov, Evgeniya Talalaeva и др.	European Polymer Journal, 140, 2020	0014-3057	ВАК; Ринц; Web of Science; Scopus	The samples of molecular brushes with a polydimethylsiloxane backbone and side chains of poly-2-isopropyl-2-oxazoline have been synthesized. Regular polydimethylsiloxane with undecene tosylate groups in every fourth siloxane unit was used as a macroinitiator. Two prepared samples are characterized by the same grafting density of side chains, but their different length and copolymer molar mass, 400,000 and 710000 g·mol <sup>-1</sup> . Solution behavior study revealed that macroinitiator and its precursor are flexible-chain polymers and macroinitiator's thermodynamic rigidity is similar to one of polydimethylsiloxane. It was shown that the conformation of the graft copolymer molecules in a selective solvent resembles a polymer star because of the backbone of molecular brushes is strongly folded and shielded from the solvent by the side chains. The thermoresponsiveness of the synthesized molecular brushes in aqueous solutions has been demonstrated.	Да (если в тексте публикации указано название ЦКП или УНУ)	7
2.	1874535	Статья в научном журнале	Carboxyl-Containing Polydimethylsiloxanes: Synthesis and Properties	10.32931/ior2011r	V. V. Gorodov, S. A. Milenin, N. V. Demchenko, A. M. Muzafarov	INEOS Open, 3, 2020	2658-5618	ВАК; Ринц; Web of Science; Scopus	The present review highlights the synthetic approaches to carboxyl-containing polydimethylsiloxanes (PDMSs). The main properties of these copolymers are described. The potential of their application in different fields of science and technology is demonstrated. The promising routes for further development of this group of copolymers are suggested.	Да (если в тексте публикации указано название ЦКП или УНУ)	53

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1	1A	2	3	4	5	6	7	8	9	10	11
3.	1873481	Статья в научном журнале	Charge photogeneration and recombination in single-material organic solar cells and photodetectors based on conjugated star-shaped donor-acceptor oligomers	10.1016/j.orgel.2019.105588	Artur L. Mannanov, Petr S. Savchenko, Yuriy N. Luponosov, Alexander N. Solodukhin, Sergey A. Ponomarenko и др.	Organic Electronics, 78, 2020	1566-1199	БАК; Ринц; Web of Science; Scopus	Single-material organic solar cells (SMOSC) are attracted by their simple structure and ease of fabrication so that they are virtually free from a number of drawbacks of heterojunction organic solar cells. However, the performance of SMOSC is still low, first of all because of poor understanding of losses on the way of energy conversion from light to electricity. In this work, we present solution-processed SMOSC based on star-shaped nonconjugated donor-acceptor oligomers with triphenylamine donor (N-Ph3) and alkyl- or phenyl dicyanovinyl acceptor (DCV-R) of general formulae N(Ph-nT-DCV-R)3, where nT stands for n-oligothiophene, and study charge photogeneration and recombination in them. SMOSC demonstrate small energy losses resulting in high open-circuit voltage of 1.08 – 1.19 V and the power conversion efficiency up to 1.22% under illumination intensity of 0.45 sun (1.13% under one sun) with the maximum external quantum efficiency up to 24% for N(Ph-2T-DCV-Ethyl)3, which are among the highest for SMOSC based on conjugated donor-acceptor small molecules or oligomers. It was found that monomolecular recombination dominates at the short-circuit condition and the maximum power point, but at the open-circuit condition the photoinduced charges recombine nearly bimolecularly. The bottleneck in the SMOSC performance was shown to be the field-assisted charge generation perfectly described by the Onsager model in the limit of weak electric fields. The results obtained suggest that intermolecular charge delocalization in conjugated donor-acceptor molecules would be beneficial for further progress in SMOSC.	Да (если в тексте публикации указано название ЦКП или УНУ)	6

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1	1A	2	3	4	5	6	7	8	9	10	11
4.	1873475	Статья в научном журнале	Effect of fused triphenylamine core in star-shaped donor- $\pi$ -acceptor molecules on their physicochemical properties and performance in bulk heterojunction organic solar cells	10.1016/j.yepig.2020.108260	Yuriy N. Luponosov, Alexander N. Solodukhin, Artur L. Mannanov, Petr S. Savchenko, Yury Minenkov и др.	Dyes and Pigments, 1, 2020	0143-7208	ВАК; Ринц; Web of Science; Scopus	fused derivative of triphenylamine and linked through $\pi$ -conjugated terthiophene spacers and terminal hexyldicyanovinyl electron-withdrawing units is reported. Its physicochemical and photovoltaic properties were comprehensively studied and compared to those of molecule II being a structural analog but with a pristine propeller-like triphenylamine core. The novel molecule shows combination of the higher crystallinity, solubility and thermal stability. As compared to II, bulk heterojunction organic solar cells based on I as a donor and PC71BM as an acceptor showed the three times higher hole mobility, 50% larger external quantum efficiency, which resulted in up to twice higher power conversion efficiency reaching 6.14%. This work demonstrates that the triphenylamine core fused by p-tolylmethylene groups in the star-shaped donor acceptor molecules is a promising building block to design highly soluble and crystalline materials for organic optoelectronic devices.	Да (если в тексте публикации указано название ЦКП или УНУ)	7

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1	1A	2	3	4	5	6	7	8	9	10	11
5.	1873479	Статья в научном журнале	End group tuning in small molecule donors for non-fullerene organic solar cells	10.1016/j.yepig.2019.108078	Jie Guo, Dmitry O. Balakirev, Chengjun Gu, Svetlana M. Peregudova, Sergei A. Ponomarenko и др.	Dyes and Pigments, 175, 2020	0143-7208	БАК; Ринц; Web of Science; Scopus	Two novel small molecules, which consist of electron donating benzodithiophene core bridged through bithiophene $\pi$ -spacer with terminal either dicyanovinyl (DCV-Me) or n-butyl cyanoester (CNAB) electron-withdrawing groups, were designed and used as donor materials for all-small molecule OSCs (all-SM-OSCs) with a non-fullerene acceptor (IDIC). The novel donor oligomers were firstly characterized by thermal gravimetric analysis, differential scanning calorimetry, UV-Vis spectroscopy, and cyclic voltammetry as well as studied by density functional theory calculations. The simple change of the DCV-Me to CNAB group leads to more pronounced crystallinity, higher solubility and higher energy levels in the donor BDT-2T-CNAB. The photovoltaic devices based on the BDT-2T-CNAB:IDIC blend exhibit higher short-circuit current ( $J_{sc}$ ) and fill factor, and thus much higher power conversion efficiency (PCE) of 6.17% than those of BDT-2T-DCV-Me:IDIC devices (1.56%). Compared to the BDT-2T-DCV-Me system, the BDT-2T-CNAB based device shows smoother film surface morphology, and superior exciton dissociation, charge generation and charge carrier mobilities as well as lower non-geminate recombination losses. The results clearly demonstrate that the design of new small molecule donors for high-performance all-SM-OSCs should aim to choose suitable end acceptor units, among which the alkyl cyanoester groups are one of the most promising.	Да (если в тексте публикации указано название ЦКП или УНУ)	8

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1	1A	2	3	4	5	6	7	8	9	10	11
6.	1873482	Статья в научном журнале	Excited state dynamics and exciton diffusion in triphenylamine/dicyanovinyl push-pull small molecule for organic optoelectronics	10.1038/s41598-020-78197-2	Benedito A. L. Raul, Yuriy N. Luponosov, Wenyan Yang, Nikolay M. Surin, Olivier Douhéret и др.	Scientific Reports, 10, 2020	2045-2322	ВАК; РИНЦ; Web of Science; Scopus	Triphenylamine-based small push-pull molecules have recently attracted substantial research attention due to their unique optoelectronic properties. Here, we investigate the excited state de-excitation dynamics and exciton diffusion in TPA-T-DCV-Ph-F small molecule, having simple chemical structure with asymmetrical architecture and end-capped with electron-withdrawing p-fluorodicyanovinyl group. The excited state lifetime in diluted solutions (0.04 ns in toluene and 0.4 ns in chloroform) are found to be surprisingly shorter compared to the solid state (3 ns in PMMA matrix). Time-dependent density functional theory indicates that this behavior originates from nonradiative relaxation of the excited state through a conical intersection between the ground and singlet excited state potential energy surfaces. Exciton diffusion length of ~ 16 nm in solution processed films was retrieved by employing time-resolved photoluminescence volume quenching measurements with Monte Carlo simulations. As means of investigating the device performance of TPA-T-DCV-Ph-F, we manufactured solution and vacuum processed bulk heterojunction solar cells that yielded efficiencies of ~ 1.5% and ~ 3.7%, respectively. Our findings demonstrate that the short lifetime in solutions does not hinder per se long exciton diffusion length in films thereby granting applications of TPA-T-DCVPh-F and similar push-pull molecules in vacuum and solution processable devices.	Да (если в тексте публикации указано название ЦКП или УНУ)	10

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1	1A	2	3	4	5	6	7	8	9	10	11
7.	1874045	Статья в научном журнале	Fluorinated Thiophene-Phenylene Co-Oligomers for Optoelectronic Devices	10.1021/ac sami.9b202 95	Andrey Yu. Sosorev, Vasily A. Trukhanov, Dmitry R. Maslennikov, Oleg V. Borshchev, Roman A. Polyakov и тд.	ACS Applied Materials & Interfaces, 12, 2020	1944-8244	ВАК; Ринц; Web of Science; Scopus	Organic optoelectronics requires materials combining bright luminescence and efficient ambipolar charge transport. Thiophene-phenylene co-oligomers (TPCOs) are promising highly emissive materials with decent charge-carrier mobility; however, they typically show poor electron injection in devices, which is usually assigned to high energies of their lowest unoccupied molecular orbitals (LUMOs). A widely used approach to lower the frontier orbitals energy levels of a conjugated molecule is its fluorination. In this study, we synthesized three new fluorinated derivatives of one of the most popular TPCOs, 2,2'-(1,4-phenylene)bis[5-phenylthiophene] (PTPTP) and studied them by cyclic voltammetry, absorption, photoluminescence, and Raman spectroscopies. The obtained data reveal a positive effect of fluorination on the optoelectronic properties of PTPTP: LUMO levels are finely tuned, and photoluminescence quantum yield and absorbance are increased. We then grew crystals from fluorinated PTPTPs, resolved their structures, and showed that fluorination dramatically affects the packing motif and facilitates $\pi$ -stacking. Finally, we fabricated thin-film organic field-effect transistors (OFETs) and demonstrated a strong impact of fluorination on charge injection/transport for both types of charge carriers, namely, electrons and holes. Specifically, balanced ambipolar charge transport and electroluminescence were observed only in the OFET active channel based on the partially fluorinated PTPTP. The obtained results can be extended to other families of conjugated oligomers and highlight the efficiency of fluorination for rational design of organic semiconductors for optoelectronic devices.	Да (если в тексте публикации указано название ЦКП или УНУ)	9518

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1	1A	2	3	4	5	6	7	8	9	10	11
8.	1874521	Статья в научном журнале	Hydrolytic polycondensation of trimethoxymethylsilane under ultrasonic irradiation	10.1016/j.mencom.2020.05.025	Nikita G. Yakhontov, Olga B. Gorbatshevich, Alexandra A. Kalinina, Nina V. Demchenko, Valentina V. Kazakova и др.	Mendelev Communications, 30, 2020	0959-9436	ВАК; Ринц; Web of Science; Scopus	The hydrolytic polycondensation of trimethoxymethylsilane in the absence of catalyst and solvent under ultrasonic irradiation was performed, the effect of reagent ratio, power, temperature and irradiation duration on the process outcome was estimated. Thus obtained polyorganosilsesquioxanes were characterized by <sup>1</sup> H NMR and IR spectroscopy as well as gel permeation chromatography.	Да (если в тексте публикации указано название ЦКП или УНУ)	338

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1	1A	2	3	4	5	6	7	8	9	10	11
9.	1874087	Статья в научном журнале	Impact of N-substitution on structural, electronic, optical, and vibrational properties of a thiophene-phenylene co-oligomer	10.1039/D0RA03343J	Vasiliy A. Trukhanov, Dmitry I. Dominskiy, Olga D. Parashchuk, Elizaveta V. Feldman, Nikolay M. Surin и др.	RSC Advances, 10, 2020	2046-2069	БАК; Ринц; Web of Science; Scopus	Properties of the organic semiconductors can be finely tuned via changes in their molecular structure. However, the relationship between the molecular structure, molecular packing, and (opto)electronic properties of the organic semiconductors to guide their smart design remains elusive. In this study, we address computationally and experimentally the impact of subtle modification of a thiophene-phenylene co-oligomer CF3-PTTP-CF3 on the molecular properties, crystal structure, charge transport, and optoelectronic properties. This modification consists in the substitution of two C-H atom pairs by N atoms in the thiophene units and hence converting them to thiazole units. A dramatic effect of the Nsubstitution on the crystal structure—the crossover from the herringbone packing motif to p-stacking— is attributed to significant changes in the molecular electrostatic potential. The changes in the molecular and crystal structure resulting from the N-substitution clearly reveal themselves in the Raman spectra. The increase of the calculated electron mobility in the corresponding crystals as a result of the Nsubstitution is rationalized in terms of the changes in the molecular and crystal structure. The charge transport, electroluminescence, and photoelectric properties are compared in thin-film organic fieldeffect transistors based on CF3-PTTP-CF3 and its N-substituted counterpart. An intriguing similarity between the effects of N-substitution in the thiophene rings and fluorination of the thiophene- phenylene oligomer is revealed, which is probably associated with a more general effect of electronegative substitution. The obtained results are anticipated to facilitate the rational design of organic semiconductors.	Да (если в тексте публикации указано название ЦКП или УНУ)	28137



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10.	1873480	Статья в научном журнале	In search of efficient solubilizing groups for liquid and luminescent oligo(phenylenethiophene) chromophores	10.1039/d0tc04536e	Yuriy N. Luponosov, Dmitry O. Balakirev, Ivan V. Dyadishchev, Alexander N. Solodukhin, Marina A. Obrezkova	Journal of Materials Chemistry C, 47, 2020	2050-7534	БАК; Ринц; Web of Science; Scopus	In this work, the synthesis of oligomers having rigid conjugated 4,4'-bis(2-thienyl)biphenyl fragment end-capped with various types of solubilizing groups (SGs), such as either alkyl or alkylsilyl or alkyl-oligodimethylsiloxane are reported. The comprehensive study of their thermal and optical properties as well as rheology in comparison to model highly crystalline oligomers with simple either hexyl or trimethylsilyl SGs allowed us to elucidate structure-properties correlations and find the most powerful type of SG in terms of liquefaction for them. It was revealed that oligomers with long and branched alkyl SGs still remain high crystallinity, whereas oligomers with alkyl-oligodimethylsiloxane SGs combine very low glass transition temperatures (up to -111 °C) with a residual crystallinity. The alkylsilyl SGs were found to be the most efficient, since the oligomers end-capped with trihexyl- and tri(2-butyloctyl)silyl SGs are liquid and have low values of both the glass transition temperature (up to -48 °C) and viscosity (up to 1.98 Pa·s). All the oligomers prepared have similar optical absorption/luminescence spectra and high values of photoluminescence quantum yield in solution (up to 90%) without a significant impact of the SG type on that. In the neat films, the type of SG has a huge impact on the shape and maxima of absorption and luminescence spectra as well as the photoluminescence efficiency. Among this series of molecules, oligomers with alkylsilyl SGs demonstrate the highest values of photoluminescence quantum yield in the neat form (24% - 61%) and close to the solution optical characteristics, which indicate their strong capability to suppress aggregation of molecules in the bulk. Thus, for the first time liquid luminescent thiophene/phenylene co-oligomers were reported and a solubilizing capability of some of the most perspective types of SG was comprehensively investigated and compared to each other. The results obtained can be used as a guideline for design of functional materials based on conjugated oligomers with a tunable and controllable phase behaviour, solubility and optical properties in the neat state.	Да (если в тексте публикации указано название ЦКП или УНУ)	17080
	12.03.2024				Центр исследования полимеров	(код отчета: 1833859), Форма					9 из 25

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11.	1873824	Статья в научном журнале	Influence of Genipin Crosslinking on the Properties of Chitosan-Based Films	10.3390/polym12051086	Nataliya Kildeeva, Anatoliy Chalykh, Mariya Belokon, Tatyana Petrova, Vladimir Matveev и др.	Polymers, 12, 2020	2073-4360	ВАК; Ринц; Web of Science; Scopus	Chitosan is a promising environment friendly active polymer packaging material due to its biodegradability, exceptional film forming capacity, great mechanical strength, appropriate barrier property along with intrinsic antioxidant and antimicrobial features. Bifunctional reagent was used for producing water insoluble chitosan films. Biopolymeric films crosslinked by Genipin (Gp), which is a reagent of natural origin, should have high potential in food packaging. The influence of the ratio of functional groups in the chitosan-Gp system on film absorption in the visible and ultraviolet regions of the spectrum, sorption, physical, and mechanical properties of the films has been studied. The degree of chitosan crosslinking in the films obtained from solutions containing Gp was estimated using the experimental data on film swelling and water vapor sorption isotherms. It is demonstrated that crosslinking with genipin improves swelling, water resistance, and mechanical properties of the films.	Да (если в тексте публикации указано название ЦКП или УНУ)	12
12.	1873752	Статья в научном журнале	Influence of the Growing Flexible Shell on the Molecular Behavior of Hybrid Dendrimers	10.1021/acs.macromol.0c01453	Sergey A. Milenin, Georgy V. Cherkaev, Nina V. Demchenko, Elena S. Serkova, Irina Yu. Krasnova и др.	Macromolecules, 53, 2020	0024-9297	ВАК; Ринц; Web of Science; Scopus	A versatile approach to the synthesis of hybrid dendrimers composed of a rigid aromatic core and a flexible carbosilane shell is proposed. For this, carbosilane monodendrons of the first, second, and third generations were linked to a Muellen-type polyphenylene dendrimer via the copper-catalyzed azide-alkyne cycloaddition reaction. A series of hybrid dendrimers with a fixed phenylene core size and various carbosilane peripheries were synthesized to clarify the influence of a growing flexible shell on thermal and rheological dendrimer properties. Small-angle X-ray scattering experiments and density functional theory calculations revealed that the dendrimers form a columnar phase with hexagonal (G1, G2) and orthorhombic (G3) types of packing.	Да (если в тексте публикации указано название ЦКП или УНУ)	9

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13.	1874022	Статья в научном журнале	Large area free-standing single crystalline films of p-quinquephenyl: growth, structure and photoluminescence properties	10.3390/cryst10050363	V. A. Postnikov, A. A. Kulishov, N. I. Sorokina, M. S. Lyasnikova, A. E. Voloshin и др.	Crystals, 10, 2020	2073-4352	ВАК; Ринц; Web of Science; Scopus	Studies in part on p-quinquephenyl crystals growth from solution and crystal structure were made with financial support from the Ministry of Science and Higher Education of the Russian Federation within the State assignment FSRC "Crystallography and Photonics" RAS using the equipment of Collaborative Access Center "Structural diagnostics of materials" (project # RFMEF162119X0035); studies in part on p-quinquephenyl crystals growth by the PVT method and their crystal structure were made under the support of the Russian Foundation for Basic Research (grant no. 19-32-90145); development of the approaches to purification of the conjugated oligomers was supported by the Russian Science Foundation (grant no. 18-73-10182); UV/Vis spectroscopy and fluorescence measurements were performed with the financial support from the Ministry of Science and Higher Education of the Russian Federation, using the equipment of the Collaborative Access Center "Center for Polymer Research" of ISPM RAS.	Да (если в тексте публикации указано название ЦКП или УНУ)	12
14.	1874524	Статья в научном журнале	Low-Modulus Elastomeric Matrices for Magnetoactive Composites with a High Magnetic Field Response	10.1134/S0965545X20040082	Kostrov S.A., Gorodov V.V, Sokolov B.O, Muzafarov A.M, Kramarenko E.Y.	Polymer Science - Series A, 62, 2020	0965-545X	ВАК; Ринц; Web of Science; Scopus	Magnetoactive elastomers based on polydimethylsiloxane functional oligomers with a concentration of magnetic iron microparticles of 70, 75, and 80 wt % are synthesized. Soft samples with low (about 2 kPa) elastic moduli are obtained by introducing side chains into the polymer network without using a low molecular weight oil. It is shown that the rigidity of the matrix can be controlled by varying the concentration of only the crosslinking agent. The obtained magnetoactive elastomers have a high magnetic field response: the relative growth of the real part of the dynamic shear modulus of soft samples exceeds two orders of magnitude and reaches 400 in a magnetic field of 1 T. The contact angle of water with the surface of the composites increases to 140° in a magnetic field of the order of 400 mT.	Да (если в тексте публикации указано название ЦКП или УНУ)	390

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1	1A	2	3	4	5	6	7	8	9	10	11
15.	1873471	Статья в научном журнале	Materials based on protein-contained chitosan-g-oligo-/polylactide copolymers synthesized through mechanochemical approach	10.1016/j.matpr.2019.12.350	T.S. Demina, T.N. Popyrina, A.S. Kuryanova, E.V. Istranova, C. Grandfils и др.	Materials Today: Proceedings, 0, 2020	2214-7853	ВАК; Ринц; Web of Science; Scopus	Solid-state mechanochemical approach to copolymer synthesis is a promising way to produce macromolecules combining properties and advantages of polymers of different nature. In addition to high efficiency and ecological benefits this synthetic route allows producing a relatively high amount of copolymers, which makes fabrication of the copolymer-based materials reasonable. Synthesis of amphiphilic natural/synthetic copolymers is especially promising in terms of their further use for formation of advanced materials for various applications, especially for biomedicine. This study highlights an effect of hydrophilic-hydrophobic balance of complex protein-contained chit	Да (если в тексте публикации указано название ЦКП или УНУ)	3

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1	1A	2	3	4	5	6	7	8	9	10	11
16.	1874517	Статья в научном журнале	Multifunctional hydrophobic coatings based on siloxane polymers with branched perfluoroalkyl substituents: Fast, simple and ecologically safe synthesis in active media.	10.1016/j.jo rganchem.2020.121398	Drozdov F.V., Krapivko A.L., Cherkaev G.V., Gervits L.L., Yashtulov N.A. и др.	Journal of Organometallic Chemistry, 921, 2020	0022-328X	БАК; Ринц; Web of Science; Scopus	This article discusses the synthesis of polyorganosiloxanes with 1,1,1,2,2,3,3-heptafluoro-4,4- bis(trifluoromethyl)pentyl (Rf = CF <sub>3</sub> CF <sub>2</sub> CF <sub>2</sub> C(CF <sub>3</sub> ) <sub>2</sub> (CH <sub>2</sub> ) <sub>3</sub> -) perfluoroalkyl substituents for the sake of hydrophobic coatings. Using perfluoroalkyl di- and trifunctional alkoxy silane derivatives, linear and branched siloxanes were obtained. The main emphasis of this work based on the simplicity of the proposed condensation approach in the active medium, the environmental component of the application of alkoxy silanes instead of toxic chlorosilanes, and the low cost and harmlessness of the perfluorinated compounds used. Varying the nature of the active medium, the ratio of reagents and temperature, it was shown that the polymers with the highest molecular weight (Mn > 40000) are obtained by refluxing the reaction mixture for 40 hours in the ratio RfSi(OEt) <sub>3</sub> + CH <sub>3</sub> COOH = 1:15. The hydrophobizing ability of all the obtained polymers was tested by measuring the contact angle (θ) on glass and aluminum. Branched polymers with Mn = 37600 and 42000 showed the best results (θ > 108). In addition, the work shows the prospects of hydrophobization ability of epoxy resins with the copolymers of triethoxysilane with branched perfluoroalkyl substituents and phenyltriethoxysilane in comparison with their known analogues.	Да (если в тексте публикации указано название ЦКП или УНУ)	6

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1	1А	2	3	4	5	6	7	8	9	10	11
17.	1874131	Статья в научном журнале	New functional metallosiloxanes with partially siloxy substituted metall atom and their use in silicone compositions	10.1016/j.jorganchem.2019.121034	A.N. Tarasenkov, N.A. Tebeneva, M.S. Parshina, I.B. Meshkov, N.G. Vasilenko и др.	Journal of Organometallic Chemistry, 906, 2020	0022-328X	БАК; Ринц; Web of Science; Scopus	A synthetic process for new functional metallosiloxanes containing M-OEt groups (where M is metal) has been developed. Compounds of iron, aluminum and zirconium were obtained by the interaction of a corresponding metal chloride with a mixture of sodium organoalkoxysilanolate and sodium ethylate in a ratio that makes it possible to preserve and adjust the number of functional groups at the metal atoms. A process of partial hydrolysis of functional metallosiloxanes and a possibility of using the products obtained as a binder in compositions based on silicone rubber have been investigated. It has been shown that such compounds can be used as cross-linking agents in silicone rubber compositions.	Да (если в тексте публикации указано название ЦКП или УНУ)	9

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1	1A	2	3	4	5	6	7	8	9	10	11
18.	1874171	Статья в научном журнале	New hybrid materials based on cyclophosphazene and polysiloxane precursors: Synthesis and properties	10.1016/j.polymer.2019.122011	Khanin D.A., Kononevich Yu.N., Temnikov M.N., Morgalyuk V.P., Vasil'ev V.G. и др.	Polymer, 186, 2020	0032-3861	БАК; Ринц; Web of Science; Scopus	New cross-linked polymers with different morphology based on cyclotriphosphazene and polysiloxane precursors were obtained by the thiol-ene radical addition. A series of samples such as aerogels with various density, a xerogel, a monolith and a film were prepared and their physicomechanical properties were studied. Phosphazene-containing polymeric aerogels were prepared directly in supercritical carbon dioxide (scCO <sub>2</sub> ) media. The morphology of the samples was investigated by scanning electron microscopy (SEM). The average particle size in the aerogels was in the range of 2-15 μm. The mechanical properties of all the samples were studied by the compression test. It was shown that the Young modulus of the monolith (95 MPa) was 7 times larger than that of the xerogel (14 MPa). The aerogels are porous elastic polymers with the Young modulus of 0.032 and 0.257 MPa, correspondingly. The thermal stability of the samples was evaluated by thermal gravimetric analysis (TGA). Weight loss was observed in the range of 255- 298 °C in air and 251-295 °C in argon for all the samples. Aerogel samples have a greater water contact angle (130° for A1 and 136° for A2) than xerogel (122°), monolith (121°) and film samples (84°), which can be explained by the lotus effect.	Да (если в тексте публикации указано название ЦКП или УНУ)	8

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1	1A	2	3	4	5	6	7	8	9	10	11
19.	1871826	Статья в научном журнале	NH <sub>3</sub> and H <sub>2</sub> S real-time detection in the humid air by two-layer Langmuir-Schaefer OFETs	10.1016/j.snb.2020.12.8609	Askold A. Trul, Victoria P. Chekusova, Marina S. Polinskaya, Alexey N. Kiselev, Elena V. Agina	Sensors and Actuators B: Chemical, 321, 2020	0925-4005	ВАК; Ринц; Web of Science; Scopus	Development of highly-sensitive low-power low cost sensors for toxic gas detection is a challenging task for today. Here we present a novel simple and fast approach for fabrication of reusable gas sensors for NH <sub>3</sub> and H <sub>2</sub> S real-time detection based on Langmuir-Schaefer (LS) monolayer organic field-effect transistors with an active layer modified by an additional metal-containing porphyrin receptor layer. The devices prepared worked at room temperature and were found to be highly sensitive to the presence of ammonia and hydrogen sulfide at concentrations lower than 1 ppm. They demonstrated the improvement of both limit of detection (down to ca. 60–70 ppb) and sensitivity in the air with relative humidity up to 60 % as compared to the LS monolayer devices without a receptor layer. Incorporation of the receptor layer on top of the LS semiconducting monolayer does not influence on its electrical performance, response and recovery times, while provides the device sensitivity enhancement as well as allows tuning the sensor selectivity. Impressive combination of the sensor high sensitivity and reproducibility with fast response and full recovery after finishing the analyte exposure enables utilizing the fabricated two-layer OFETs as chemo-sensors in real gas analyzing systems.	Да (если в тексте публикации указано название ЦКП или УНУ)	7
20.	1874437	Статья в научном журнале	Organoboron derivatives of stereoregular phenylcyclosilsesquioxanes.	10.1002/chem.202001676	Anisimov A.A, Drozdov F.V, Vysochinskaya Y.S, Minyaylo E.O, Peregudov A.S и др.	Chemistry - A European Journal, 26, 2020	0947-6539	ВАК; Ринц; Web of Science; Scopus	This study presents the synthesis of organoboron derivatives of stereoregular 4-, 6-, and 12-unit phenylcyclosilsesquioxanes. All compounds obtained were isolated in good yields (70–80 %) and were fully characterized by <sup>1</sup> H, <sup>13</sup> C, <sup>29</sup> Si, <sup>11</sup> B NMR, IR spectroscopy, HRMS ESI, and elemental microanalysis. The structure of the key modifier, obtained for the first time, 4-(tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl dimethylvinylsilane, was also confirmed by single-crystal XRD.	Да (если в тексте публикации указано название ЦКП или УНУ)	11406



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1	1A	2	3	4	5	6	7	8	9	10	11
21.	1874538	Статья в научном журнале	Polydiethylsiloxane Macroinitiators for the Synthesis of Block Copolymers	10.32931/io2023a	M. A. Obrezkova, E. V. Selezneva, N. V. Demchenko, M. Möller, V. M. Kotov	Ineos Open, 3, 2020	2658-5618	ВАК; Ринц; Web of Science; Scopus	$\alpha$ -Butyl- $\omega$ -(lithiumoxy)oligodiethylsiloxane and $\alpha,\omega$ -dipotassiumoxypolydiethylsiloxane are synthesized by the anionic polymerization of hexaethylcyclotrisiloxane in the presence of n-BuLi or KOH, respectively. The mono- and bifunctional polydiethylsiloxane macroinitiators are derived from the reactions of $\alpha$ -butyl- $\omega$ -(lithiumoxy)oligodiethylsiloxane and $\alpha,\omega$ -dipotassiumoxypolydiethylsiloxane with chloro(dimethyl)-(4-chloromethylphenylethyl)silane. The resulting polydiethylsiloxane macroinitiators can be used for the synthesis of di- and triblock copolymers.	Да (если в тексте публикации указано название ЦКП или УНУ)	180
22.	1874101	Статья в научном журнале	Radiation-induced macrocycle cleavage in crown ether complexes with Sr (II) and Y(III) chlorides: A comparative study	10.1016/j.radphyschem.2020.109023	Sergey V. Nesterov, Olga A. Zakurdaeva, Natalya A. Sokolova, Pavel V. Rychkov, Vladimir I. Feldman	Radiation Physics and Chemistry, 176, 2020	0969-806X	ВАК; Ринц; Web of Science; Scopus	Macrocyclic 18-crown-6-SrCl <sub>2</sub> and 18-crown-6-YCl <sub>3</sub> ·4.25H <sub>2</sub> O complexes were synthesized, characterized by FTIR and DSC/TGA analysis and exposed to X-rays irradiation to study their resistance to polyether ring cleavage at early radiolysis stages by using EPR spectroscopy. Yttrium complex was found to be less stable in comparison with that of strontium as evidenced by a higher fraction of acyclic radicals resulted from the macrocycle destruction. An analysis of conformationally sensitive regions of FTIR spectra of 18-crown-6·YCl <sub>3</sub> ·4.25H <sub>2</sub> O points to the strong distortion of the macrocycle symmetry that is one of the probable factors affecting the radiolytic cleavage of the polyether ring. The results obtained in the present study contribute to theoretical framework required to develop a radiation stable macrocyclic extractant for separation of the Sr/Y radionuclides.	Да (если в тексте публикации указано название ЦКП или УНУ)	6

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1	1A	2	3	4	5	6	7	8	9	10	11
23.	1874108	Статья в научном журнале	Radical channels of radiation destruction of macrocyclic component of strontium-selective extractants based on ionic liquids	10.1007/s11172-020-2906-4].	S. V. Nesterov, O. A. Zakurdaeva, M. A. Kochetkova, I. O. Kuchkina	Russian Chemical Bulletin, 69, 2020	1573-9171	ВАК; Ринц; Web of Science; Scopus	To study the radiolysis of the extractant composition based on solutions of dicyclohexano18-crown-6 (DCH18C6) in ionic liquids containing the bis(trifluoromethylsulfonyl)imide anion (NTf2 <sup>-</sup> ), we synthesized stereoisomeric DCH18C6•Sr(NTf2)2 complexes as a model of the strontium-containing macrocyclic component of this system and studied the mechanism of their destruction in the solid phase. Three main stages of radiation-chemical transformations were found. At the initial stage of radiolysis after ionization of the complex components, a positive charge is transferred from the macrocycle to the anion, which is induced by the lower ionization potential of NTf2 <sup>-</sup> as compared to the crown ether. This results in the radiation protection of the macrocycle due to the blockage of the polyether ring cleavage, which is observed under radiolysis of "free" DCH18C6. The next stage consists in the accumulation of the —O—•CH—CH2— radicals caused by the reaction of the dissociation products of the NTf2 <sup>-</sup> anion with the crown ether. It intensifies the radiation destruction of the polyether ring. At the final stage, the macrocyclic radicals efficiently scavenge SO2, the molecular product of dissociation of the NTf2 <sup>-</sup> anion, with the formation of sulfonyl-type radicals. The discovered channels of radiation-chemical transformations of the macrocycle in the systems including the NTf2 <sup>-</sup> anion should be considered in the design of new radiation-resistant extractants.	Да (если в тексте публикации указано название ЦКП или УНУ)	1334
24.	1874522	Статья в научном журнале	Ring-opening polymerization of octamethylcyclotetrasiloxane using 3d metal trifluoroacetate complexes	10.1016/j.memcom.2020.01.014	Fedor V. Drozdov, Tatyana Yu. Glazunova, Nikita L. Shikut', Nina V. Demchenko, Ekaterina A. Kurzina и др.	Mendelevov Communications, 30, 2020	0959-9436	ВАК; Ринц; Web of Science; Scopus	3d-Metal trifluoroacetate complex-catalyzed ring opening polymerization of octamethylcyclotetrasiloxane affords polydimethylsiloxanes whose molecular weight can be controlled by the nature of 3d metal complexes, in particular, by their structural type, and by the polymerization conditions. The best results were achieved using tetranuclear zinc oxotrifluoroacetate as the catalyst at a temperature of 75 °C and a reaction time of 35 h.	Да (если в тексте публикации указано название ЦКП или УНУ)	45

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1	1A	2	3	4	5	6	7	8	9	10	11
25.	1874488	Статья в научном журнале	Selective formation of 1,5-disodiumoxyhexamethyl-trisiloxane in the reaction of dimethylsiloxanes and sodium hydroxide	10.1016/j.jorganchem.2019.121050	Talalaeva E.V., Kalinina A.A., Vasilenko N.G., Demchenko N.V., Cherkaev G.V. и др.	Journal of Organometallic Chemistry, 906, 2020	0022-328X	ВАК; Ринц; Web of Science; Scopus	The 1,5-disodiumoxyhexamethyltrisiloxane has been isolated in high yield with a purity of up to 98%, by simple interaction of dimethylsiloxanes with sodium hydroxide. The reasons of high selectivity of the reaction towards 1,5-disodiumoxyhexamethyltrisiloxane were analyzed. It was found that variation of reaction time, type of dimethylsiloxane precursor and ratio between sodium hydroxide and dimethylsiloxanes in wide range led to the materialization of most part of used sodium hydroxide in 1,5-disodiumoxyhexamethyltrisiloxane. Its fast crystallization and precipitation from the homogeneous reaction media were found to be the main reason of the high selectivity of the reaction towards 1,5-disodiumoxyhexamethyltrisiloxane. The crystalline structure of 1,5-disodiumoxyhexamethyltrisiloxane was determined and its packaging peculiarities were discussed and illustrated.	Да (если в тексте публикации указано название ЦКП или УНУ)	11

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1	1A	2	3	4	5	6	7	8	9	10	11
26.	1873743	Статья в научном журнале	Sodium 3-azidopropylalkoxysilanolate - A versatile route towards new functional 1,2,3-triazole based hyperbranched polyorganoalkoxysiloxanes	10.1016/j.reactfunctpolym.2020.104648	Dmitry Migulin, Sergey Milenin, Georgy Cherkaev, Alexey Zezin, Elena Zezina и др.	Reactive and Functional Polymers, 154, 2020	1381-5148	BAK; Ринц; Web of Science; Scopus	A new type of hybrid organosilicone polymer combining the coordination ability of triazole rings with the advantages of the highly branched topological structure of the flexible polysiloxane backbone was synthesized, characterized and exploited for the formation and stabilization of silver nanoparticles. In this study a series of functional 3-azidopropylethoxysiloxanes and poly-1,2,3-triazoleorganoethoxysiloxanes with controlled molecular architectures were synthesized and characterized for the first time using controlled condensation of the new AB2-type sodiumoxo-3-azidopropyldiethoxysilane monomer and the Copper(I)- catalyzed azide-alkyne cycloaddition "Click chemistry" process. The new 1,2,3-triazole-based hybrid polymers with a functional hyperbranched polyethoxysiloxane polymer backbone showed the ability to stabilize ultrasmall silver nanoparticles. The synthesized structures were characterized using <sup>29</sup> Si NMR, <sup>1</sup> H NMR, FTIR, Mass-spectrometry, and GPC. Polymer nanocomposites with the stabilized silver nanoparticles were characterized by transmission electron microscopy (TEM).	Да (если в тексте публикации указано название ЦКП или УНУ)	7
27.	1871843	Статья в научном журнале	Solid-State Synthesis of Water-Soluble Chitosan-g-Hydroxyethyl Cellulose Copolymers	10.3390/polym12030611	Tatiana S. Demina, Aisyly V. Birdibekova, Eugenia A. Svidchenko, Pavel L. Ivanov, Anastasia S. Kuryanova и др.	Polymers, 12, 2020	2073-4360	BAK; Ринц; Web of Science; Scopus	Graft copolymers of chitosan with cellulose ether have been obtained by the solid-state reactive mixing of chitin, sodium hydroxide and hydroxyethyl cellulose under shear deformation in a pilot twin-screw extruder. The structure and composition of the products were determined by elemental analysis and IR spectroscopy. The physicochemical properties of aqueous solutions of copolymers were studied as a function of the composition, and were correlated to the mechanical characteristics of the resulting films to assess the performance of new copolymers as coating materials, non-woven fibrous materials or emulsifiers for interface stabilization during the microparticle fabrication process.	Да (если в тексте публикации указано название ЦКП или УНУ)	10

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1	1A	2	3	4	5	6	7	8	9	10	11
28.	1873476	Статья в научном журнале	Star-shaped benzotriindole-based donor-acceptor molecules: Synthesis, properties and application in bulk heterojunction and single-material organic solar cells. Dyes and Pigments, 108523. doi:10.1016/j.dyepig.2020.108523	10.1016/j.dyepig.2020.108523	Dmitry O. Balakirev, Yuriy N. Luponosov, Artur L. Mannanov, Petr S. Savchenko, Yury Minenkov и др.	Dyes and Pigments, 181, 2020	0143-7208	ВАК; Ринц; Web of Science; Scopus	The search of the novel building blocks for $\pi$ -conjugated donor-acceptor (D- $\pi$ -A) molecules remains an urgent task to design promising materials for organic solar cells (OSCs) and other electronic devices. Here we report on the design and synthesis of two benzotriindole (BTI) based star-shaped D- $\pi$ -A small molecules, BTI(2T-DCV-Hex)3 and BTI(2T-CNA-EHex)3, end-capped with either hexyldicyanovinyl or 2-ethylhexylcyanoacetate acceptor groups. Comprehensive investigation and comparison of the optical, thermal and physicochemical properties of these molecules and their analogue with the triphenylamine (TPA) core, N(Ph-2T-DCV-Hex)3, revealed the effect of the electron-withdrawing groups and type of the donor core on their properties. The BTI-based material BTI(2T-DCV-Hex)3 differs from the amorphous TPA-based analogue by high crystallinity and blue-shifted absorption and luminescence spectra. The change of electron-withdrawing group from hexyldicyanovinyl to 2-ethylhexylcyanoacetate leads to higher energy of the lowest unoccupied molecular orbital, the increased crystallinity, the lower solubility and several times higher photoluminescence quantum yield in solutions achieving 67%. Evaluation of the photovoltaic performance of these materials in single-material OSCs and as a donor material in bulk heterojunction OSCs with PC71BM as an acceptor revealed that the devices based on BTI(2T-DCV-Hex)3 are more efficient as compared to those based on BTI(2T-CNA-EHex)3. In comparison to N(Ph-2T-DCV-Hex)3, the photovoltaic devices based on BTI(2T-DCV-Hex)3 showed the comparable performance in bulk heterojunction OSCs and two times higher performance in single-material OSCs. As a result, we conclude that the BTI core is a promising block for the design of semiconducting materials for organic photovoltaics and other related applications.	Да (если в тексте публикации указано название ЦКП или УНУ)	10

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29.	1874491	Статья в научном журнале	Stereoregular cyclic p-tolyl-containing siloxanes as promising reagents for synthesizing functionalized organosiloxanes	10.1016/j.jorganchem.2020.121223	Kholodkov D.N., Anisimov A.A., Zimovets S.N., Korlyukov A.A., Novikov R.A. и др.	Journal of Organometallic Chemistry, 914, 2020	0022-328X	ВАК; Ринц; Web of Science; Scopus	A series of well-defined stereoregular cyclic p-tolyl-siloxanes have been obtained as promising reagents for the synthesis of functionalized derivatives. The method is well scalable and allows one to obtain target products on a gram scale (z10 g) in 57e62% yields. The structure of the compounds has been confirmed by complex physico-chemical methods of analysis: IR, ESI-HRMS, GPC, 1D and 2D 1 H, 13C, 29Si NMR experiments, and X-Ray diffraction.	Да (если в тексте публикации указано название ЦКП или УНУ)	4
30.	1874444	Статья в научном журнале	Synthesis and comparison of the rheological and thermal properties of acyclic and polycyclic forms of polyphenylsilsesquioxane	10.1016/j.eurpolymj.2020.109676	Temnikov M.N., Vasil'ev V.G., Buzin M.I., Muzafarov A.M.	European Polymer Journal, 130, 2020	0014-3057	ВАК; Ринц; Web of Science; Scopus	In this work, we present a synthesis of a non-functional acyclic form of polyphenylsilsesquioxane (a-PPSQ) by the Piers-Rubinsztajn reaction of hyperbranched polyphenylethoxysiloxane (PPEOS) with dimethylphenylsilane. The polycyclic form of PPSQ (pc-PPSQ) was obtained by hydrolytic polycondensation of PPEOS in acetic acid followed by addition of dimethylphenylethoxysilane as the blocking agent. The rheological and thermal properties of acyclic and polycyclic forms of PPSQ were compared. All the PPSQs have high heat resistance (T5% weight loss) ranging from 405 to 480 °C in air and up to 500 °C in an inert environment. The glass transition temperature (Tg) of a-PPSQ is significantly lower (-34 °C) than in pcPPSQs where Tg = 29-104 °C for pc-PPSQs with MW = 1400-5050. It was demonstrated that both a-PPSQ and pc-PPSQ offer Newtonian flow behavior. a-PPSQ with a molecular weight (MW) of 2150 has the lowest dynamic viscosity of ~0.38 Pa*s, whereas that of pc-PPSQ with MW = 1400 is ~1.8 Pa*s (at 150 °C in both cases). With an increase in pc-PPSQs molecular weight, the viscosity increases stepwise from ~1.05 * 10 <sup>4</sup> to ~2.9 * 10 <sup>4</sup> Pa*s (both at 150 °C) for pc-PPSQs with MW = 2860 and 3850, respectively. The viscous flow activation energies of pc-PPSQs with MW = 2860 and 3850 are 186 and 195 kJ/mol, respectively	Да (если в тексте публикации указано название ЦКП или УНУ)	8

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31.	1874139	Статья в научном журнале	Synthesis of guanidinopropyl triethoxysilane and its homopolymer as a new class of organosilicon antibacterial agents	10.1016/j.jorganchem.2020.121243	F.V. Drozdov, A.N. Tarasenkov, M.S. Parshina, G.V. Cherkaev, E.N. Strukova и др.	Journal of Organometallic Chemistry, 918, 2020	0022-328X	ВАК; Ринц; Web of Science; Scopus	In current work guanidinopropyl triethoxysilane was synthesized for the first time. It was shown that this compound is stable as a salt of hydroiodic acid, however, it easily undergoes condensation when heated in water, forming a water-soluble branched homopolymer. Aqueous solutions of guanidinopropyl triethoxysilane and its branched homopolymer showed moderate antibacterial activity against Staphylococcus aureus and Escherichia coli.	Да (если в тексте публикации указано название ЦКП или УНУ)	5
32.	1874530	Статья в научном журнале	Synthesis of new siloxane or sulfur containing symmetrical monomers based on carvone	10.1080/10426507.2020.1804141	Fedor V. Drozdov, Georgij V. Cherkaev, Aziz M. Muzafarov	Phosphorus, Sulfur, and Silicon and the Related Elements, 11, 2020	10426507	ВАК; Ринц; Web of Science; Scopus	We demonstrated, that based on carvone, new symmetrical AA-type monomers with double bonds can be easily prepared by thiol-ene or Michael addition of dithiols. Moreover, hydrosilylation reaction with difunctional telehelical siloxane, containing Si-H groups was also studied. Obtained monomers are suitable for further polymerization by thiol-ene or hydrosilylation polyaddition.	Да (если в тексте публикации указано название ЦКП или УНУ)	892
33.	1874520	Статья в научном журнале	Synthesis of New Siloxane-Containing Polyamide Based on Limonene and Comparison of Their Properties with Non-Siloxane Analog	10.1002/slct.202002250	Fedor V. Drozdov, Alexander N. Tarasenkov, Maria S. Parshina, Georgii V. Cherkaev, Mikhail I. Buzin и др.	ChemistrySelect, 5, 2020	2365-6549	ВАК; Ринц; Web of Science; Scopus	For the first time, diacid derivative of limonene was obtained by thiol-ene reaction with mercaptoacetic acid and it was further used as a monomer for the synthesis of polyamides. Commercially available hexamethylenediamine and its siloxane analogue, bis(aminopropyl) tetramethyl disiloxane, were used as diamines monomers. It was shown that the introduction of a siloxane unit into the structure of a polyamide chain increases the molecular weight and thermal stability of the polymer (more than 300°C), and also affects its phase behavior at room temperature.	Да (если в тексте публикации указано название ЦКП или УНУ)	11539
34.	1873821	Статья в научном журнале	Synthesis of siloxane nanogel with phenylboronic functional groups	10.1080/10426507.2020.1804142	Sergey A. Milenin, Fedor V. Drozdov, Ivan B. Meshkov, Aziz M. Muzafarov	Phosphorus, Sulfur, and Silicon and the Related Elements, Phosphorus, Sulfur, and Silicon and the Related Elements, 2020	1042-6507	ВАК; Ринц; Web of Science; Scopus	In this work, a siloxane nanogel containing phenyl borate functional groups was obtained consistently by condensation of the sodium salt of methyltriethoxysilane in acetic acid and further functionalization with 4,4,5,5-tetramethyl-2-styryl-1,3,2-dioxaborolane (St-BPin) by hydrosilylation reaction. The obtained nanogel was investigated by NMR and IR spectroscopy, element analysis, and GPC.	Да (если в тексте публикации указано название ЦКП или УНУ)	2

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1	1A	2	3	4	5	6	7	8	9	10	11
35.	1874059	Статья в научном журнале	Tetrahedral Silicon-Centered Dibenzoylmethanato boron Difluorides: Synthesis, Crystal Structure and Photophysical Behavior in Solution and Solid State	10.1002/cplu.201900732	Yuriy N. Kononevich, Maxim N. Temnikov, Alexander A. Korlyukov, Alexander D. Volodin, Pavel V. Dorovatovskii и др.	ChemPlusChem, 85, 2020	2192-6506	не индексируется	Four novel tetrahedral silicon-centered derivatives of dibenzoylmethanato boron difluoride (DBMBF2) were synthesized and characterized. Their structural and optical features both in solution and solid state were investigated using X-ray crystallography, steady and time-dependent spectroscopy, and DFTbased calculations. In dilute solutions, the molar absorption coefficient increases with increasing the number of DBMBF2 fragments in a molecule from 40500 to 175200 M <sup>-1</sup> cm <sup>-1</sup> , while, in contrast, the nonradiative rate constant of fluorescence decay decreases from 0.49 to 0.34. In the solid state, absorption and emission spectra depend on the degree of crystallinity and microcrystal size. Tris-DBMBF2 derivative forms fully overlapping dimeric structures exhibiting excimer-like fluorescence, which is well predicted by the quantum-chemical calculations. Mono-DBMBF2 derivative exhibits fully reverse mechanofluorochromic behavior.	Да (если в тексте публикации указано название ЦКП или УНУ)	9
36.	1873478	Статья в научном журнале	Triphenylamine-based luminophores with different side and central aromatic blocks: Synthesis, thermal, photophysical and photochemical properties	10.1016/j.dyepig.2020.108397	Yuriy N. Luponosov, Alexander N. Solodukhin, Dmitry O. Balakirev, Nikolay M. Surin, Eugenia A. Svidchenko и др.	Dyes and Pigments, 179, 2020	0143-7208	ВАК; РИНЦ; Web of Science; Scopus	In this work, a series of novel luminescent molecules of butterfly-like architecture based on TPA fragments with different central and side aromatic blocks were designed and synthesized. Various properties of the molecules were studied by differential scanning calorimetry, thermogravimetric analysis, UV-Vis optical spectroscopy and compared within this series as well as to their analogs having terminal trimethylsilyl moieties instead of diphenylamine ones. The molecules reported are promising luminescent materials, which combine high thermal stability, good solubility and large molar extinction coefficients with high photoluminescence quantum yields for emission in the green and red spectral regions. The experimental and theoretical investigations reported give more insight to the structure - property correlations for the TPA-based luminophores, as well as to their photostability and peculiarities of the conjugation through triphenylamine units between the central and the side fragments.	Да (если в тексте публикации указано название ЦКП или УНУ)	9



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1	1A	2	3	4	5	6	7	8	9	10	11
37.	1873815	Статья в научном журнале	Undecenoic acid-based polydimethylsiloxanes obtained by hydrosilylation and hydrothiolation reactions	10.1016/j.jorganchem.2019.121074	Sergey A. Milenin, Fedor V. Drozdov, Elizaveta V. Selezneva, Sofia N. Ardabevskaia, Mikhail I. Buzin и др.	ISSN: 0022-328X Journal of Organometallic Chemistry, 907, 2020	0022-328X	ВАК; Ринц; Web of Science; Scopus	In the present work for the first time polydimethylsiloxanes containing a rigid segment based on N,N-(ethane-1,2-diyl)diundec-10-enamide in the main chain were synthesized by hydrosilylation and hydrothiolation reactions. As a result, oligomers and polymers with various molecular weights from 3000 to 52000 (g mol <sup>-1</sup> , GPC) were obtained. The thermal properties of the obtained copolymers were investigated by TGA and DSC analysis. All PDMS copolymers containing different amounts of diamide fragments exhibit properties that are distinct from pure polydimethylsiloxane, which indicates a significant influence of a rigid fragment capable of forming hydrogen bonds on the phase behavior of the resulting copolymers.	Да (если в тексте публикации указано название ЦКП или УНУ)	7
38.	1871831	Статья в научном журнале	Water-soluble copolymer compositions of polysaccharides for electrospinning of biomaterials	doi.org/10.1016/j.matpr.2019.12.111	Tatiana Akopova, Tatiana Demina, Pavel Ivanov, Tikhon Kurkin, Galina Goncharuk	Materials Today: Proceedings, 0, 2020	2214-7853	ВАК; Ринц; Web of Science; Scopus	Graft-copolymers of chitosan with hydroxyethylcellulose and polyvinyl alcohol were synthesized through solid-state reactive blending under shear deformation in twin-screw co-rotated extruder. Structure of the obtained products was studied by elemental analysis and FTIR spectroscopy. Effect of the copolymer composition on the ability to electroform was evaluated in terms of casting solutions viscosity, conductivity and surface tension. Mechanical properties of the copolymeric films were investigated	Да (если в тексте публикации указано название ЦКП или УНУ)	3

Руководитель ЦКП

\_\_\_\_\_ (Городов В.В.)