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Graphical Abstracts/J. Fluorine Chem. 130 (2009) 373–376

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Hydrolytic stability of nitrogenous-heteroaryltrifluoroborates under aqueous conditions at near neutral pH

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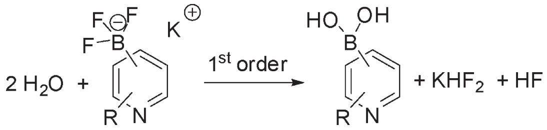

The hydrolytic stability of heteroaryltrifluoroborates under physiological conditions has been analyzed by ^{19}F NMR spectroscopy and is found to be greatly enhanced by the presence of endocyclic ring nitrogens. Stability is further enhanced by the presence of exocyclic electron withdrawing substituents. As with aryltrifluoroborates, NMR analysis suggests that the hydrolysis proceeds via single rate-determining step reflecting loss of the first fluoride atom. The stability of these complexes is significant both in terms of metal catalyzed cross-coupling reactions as well as the potential for generating boronic acid based ^{18}F-PET imaging agents.

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An empirical model to calculate ^{19}F isotropic chemical shifts in alkali-hexafluoroaluminates

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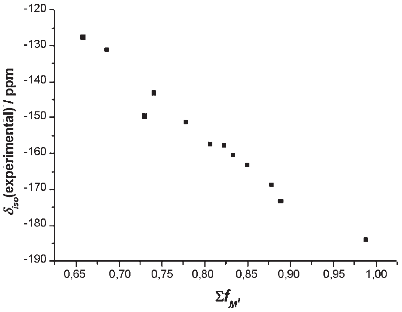
Using an empirical model based on alkali-metal Al-cryolites $M^{I}_{3}AlF_6$, it is possible to deduce factors describing the cationic influence of each alkali-metal on the isotropic ^{19}F MAS NMR chemical shift and thus to predict the chemical shift values of alkali-metal hexafluoroaluminates of the elpasolite-type $A^{I}_{2}B^{I}AlF_6$.



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Vicinal fluorine–fluorine coupling constants in perfluoropropyl groups

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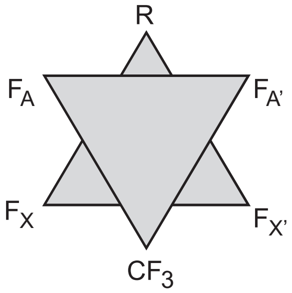
The geminal fluorines in XCF_2–CF_2Y groups comprise an AA′XX′ spin and are magnetically inequivalent. The ^{3}J(AX) and ^{3}J(AX′) range between 4 and 9 Hz and are of opposite sign.



doi:10.1016/S0022-1139(09)00068-2

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A novel pyrrolidinium ionic liquid with 1,1,2,2-tetrafluoro-2-(1,1,2,2-tetrafluoroethoxy) ethanesulfonate anion as a recyclable reaction medium and efficient catalyst for Friedel–Crafts alkylations of indoles with nitroalkenes

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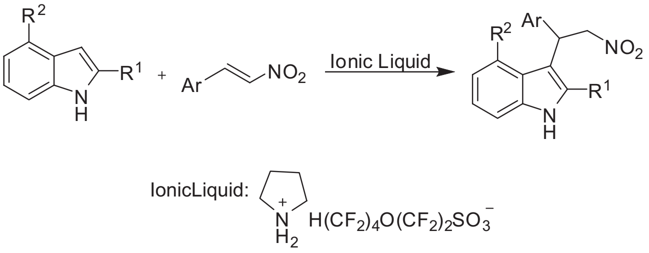
A novel pyrrolidinium ionic liquid was used as both the recyclable solvent and catalyst for Friedel–Crafts alkylations of indoles with nitroalkenes.



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Syntheses and characterization of ANi(AsF$_6$)$_3$ (A = H$_3$O$^+$, O$_2$$^+$, NO$^+$, NH$_4$$^+$, K$^+$, Rb$^+$, and Cs$^+$) compounds

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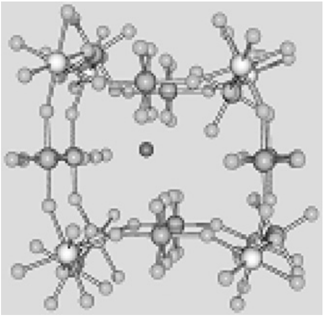
ANi(AsF$_6$)$_3$ (A = H$_3$O$^+$, O$_2$$^+$, NO$^+$, NH$_4$$^+$, K$^+$, Rb$^+$, Cs$^+$) compounds are structurally related to previously known H$_3$OCo(AsF$_6$)$_3$.



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One-pot synthesis of quinoline-4-carboxylic acid derivatives in water: Ytterbium perfluorooctanoate catalyzed Doebner reaction

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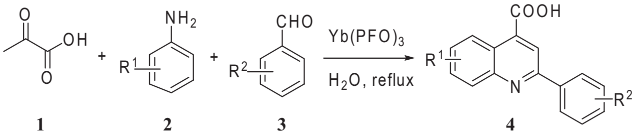

Ytterbium perfluorooctanoate [Yb(PFO)$_3$] catalyzed efficient Doebner reaction through three component coupling reactions of pyruvic acid, amines and aldehydes in water was described as a novel procedure for the preparation of quinoline-4-carboxylic acid derivatives.

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Hydrophobic and oleophobic surface modification using fluorinated bis-urea and bis-amide gelators

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Keith W. Hutchenson

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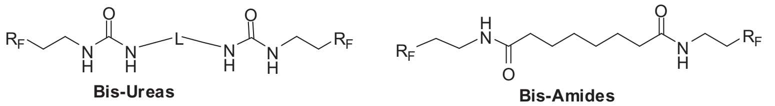

1) R$_F$ = C$_6$F$_{13}$ L = -(CH$_2$)$_6$-
2) R$_F$ = C$_4$F$_9$ L = -(CH$_2$)$_6$-
3) R$_F$ = C$_6$F$_{13}$ L = -(CH$_2$)$_8$-
4) R$_F$ = C$_6$F$_{13}$ L = 2,4-tolylene
5) R$_F$ = C$_6$F$_{13}$ L = -CH$_2$CH(CO$_2$CH$_3$)(CH$_2$)$_3$-
6) R$_F$ = C$_4$F$_9$ L = -CH$_2$CH(CO$_2$CH$_3$)(CH$_2$)$_3$-
7) R$_F$ = C$_6$F$_{13}$CH$_2$CH$_2$S L = -(CH$_2$)$_6$-
8) R$_F$ = C$_4$F$_9$CH$_2$CH$_2$S L = -(CH$_2$)$_6$-

9) R$_F$ = C$_6$F$_{13}$
10) R$_F$ = C$_4$F$_9$
11) R$_F$ = C$_6$F$_{13}$CH$_2$CH$_2$S
12) R$_F$ = C$_4$F$_9$CH$_2$CH$_2$S

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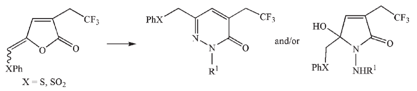
Synthesis of (2,2,2-trifluoroethyl) substituted pyridazin-3(2*H*)-ones and 1,5-dihydropyrrol-2-ones from α,β-unsaturated γ-lactones and hydrazines



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The paper presents the transformation of α,β-unsaturated γ-lactones into 2,2,2-trifluoroethyl substituted pyridazin-3(2*H*)-ones and 1,5-dihydropyrrol-2-ones starting from various hydrazines. The influence of γ-lactone substitution (sulfanyl versus sulfonyl moiety) and the nature of hydrazines (unsubstituted, alkyl- or aryl-substituted) on the outcome of the reaction were studied. All new heterocycles were characterized using 1D NMR, IR, MS and their data were compared with those of two reported X-ray diffraction structures. The two possible competitive pathways leading to pyridazin-3(2*H*)-ones and/or 1,5-dihydropyrrol-2-ones are discussed. *Ab initio* DFT calculations were also performed in order to rationalize few experimental results.

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Hexafluorosilicates of *bis*(aminopyridinium). The relationship between H-bonding system and solubility of salts

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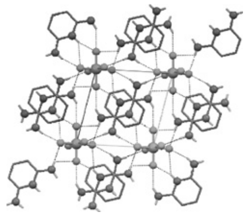

Pyridinium hexafluorosilicates of the composition $(LH)_2[SiF_6]$ (**I, II, IV**, L = 2-aminopyridine, 3-aminopyridine, and 2,6-diaminopyridine) and $(LH)_2[SiF_6]\cdot H_2O$ (**III**, L = 4-aminopyridine) were separated as crystalline products of interaction of fluorosilicic acid with relevant aminopyridines. The compounds were characterized by IR, mass-spectrometry, potentiometry, solubility data, and in the case of **I** and **IV** by X-ray crystallography. The relationship between the salts structure and some physical properties is discussed.

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Screening of fluorinated materials degrading microbes

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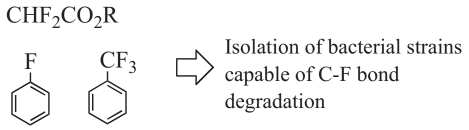

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Synthesis of novel perfluoroalkyl-containing polyethers

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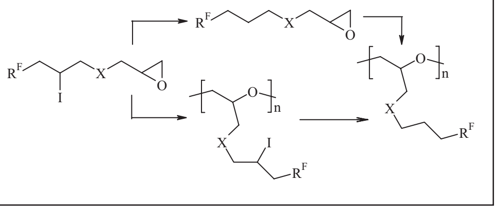
I. Ya. Postovsky Institute of Organic Synthesis, Ural Branch of the Russian Academy of Sciences, GSP-147, 620041 Ekaterinburg, Russia



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Synthesis of secondary α-perfluoroalkyl- and tertiary α,α-bis(perfluoroalkyl)-*N*-methylprolinols and their catalytic activities in the acyl transfer reaction

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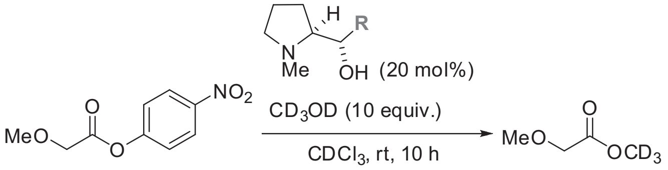
Various chiral α-perfluoroalkyl-*N*-methylprolinols were prepared and their organocatalytic activities in an acyl transfer reaction of 4-nitrophenyl 2-methoxyacetate with methanol-d_4 in chloroform-*d* were examined. As a result, α-trifluoromethyl-*N*-methylprolinol was a more effective acyl transfer catalyst than not only secondary α-perfluorobutyl- and *n*-butyl-*N*-methylprolinols but also tertiary α,α-bis(perfluorobutyl)-*N*-methylprolinol.



R = CF$_3$, 89%, TON = 4.5
R = CF$_3$(CF$_2$)$_3$, 31%, TON = 1.6
R = *n*-Bu, 22%, TON = 1.1