СПИСЪК НА ПУБЛИКАЦИИ
на доц. д-р Силвия Тодорова за периода на конкурса за "професор", Институт по катализ - БАН (ДВ бр. 24/22.03.2019)

1. S. Todorova, A. Naydenov, H. Kolev, K. Tenchev, G. Ivanov, G. Kadinov
"Effect of Co and Ce on silica supported manganese catalysts in the reactions of complete oxidation of *n*-hexane and ethyl acetate"
J. Mater. Sci., 46 (2011) 7152-7159 ***(IF$_{2011}$=2.015), Q1, 25 т.***
линк към абстракта

2. M.-L. Saladino, E. Kraleva, S. Todorova, A. Spinella, G. Nasillo, E. Caponetti,
"Synthesis and characterization of mesoporous Mn-MCM-41 materials"
J. All. Comp. 509 (2011) 8798– 8803 ***(IF$_{2011}$=2.289) Q1, 25 т.***
линк към абстракта

3. S. Todorova, A. Naydenov, H. Kolev, J. P. Holgado, G. Ivanov; G. Kadinov, A. Caballero
"Mechanism of complete *n*-hexane oxidation on silica supported cobalt and manganese catalysts"
Appl. Catal. A: General, 413-414 (2012) 43-51 ***(IF$_{2012}$=3.903) Q1, 25 т.***
линк към абстракта

4. H. Kolev, S. Todorova, A. Naydenov, R. Ene, G. Ivanov, V. Parvulescu, G. Kadinov
"Catalytic Activity of Mesoporous SBA-15 modified with Pt and Ti in a Deep Methane, *n*-hexane and CO Oxidation"
Athens: ATINER'S Conference Paper Series, 2013, No: ENV2013-0413, pp. 8-17,

Abstract

Ti-SBA-15 composite materials containing 5 and 10% Ti are obtained by direct synthesis (samples denoted Pt Tix) or by impregnation of SBA-15 with titanium isoporopoxide solution (samples denoted i-Tix, x is Ti concentaration). After calcination, the composite Ti-SBA-15 oxides are impregnated with an aqueous solution of a Pt precursor. The as-synthesized samples are characterized by SEM, XRD, XPS and tested in reaction of CO oxidation, n-hexane and methane combustion. XPS results reveal the presence of Pt+ and Pt0 on the surface of oxidized Pt Tix sample and strong interaction between Pt0 and Ti in i-Tix sample. After deposition of Pt on this sample, the finely dispersed Pt metal and Pt2O are formed on the support. The modification of pure siliceous SBA-15 with titanium by impregnation results in the formation of finely divided TiO2. Successive introduction of platinum leads to the formation only of Pt0 with 40 nm particles. The catalysts in which Pt is in a form of large metal particles and TiO2 is finely dispersed on the support exhibit highest catalytic activity in all studied reactions. The presence of water caused an increase in catalytic activity in CO oxidation and this is more remarkable for impregnated samples.

5. Z. Cherkezova-Zheleva, D. Paneva, S. Todorova, H. Kolev, M. Shopska, I. Yordanova, I. Mitov, "Impact of active phase chemical composition and dispersity on catalytic behavior in PROX reaction";
Hyperfine Interact., 226 (2014) 529-543, ***SJR (2011)= 0.208, Q3, 15 т.***
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6. S. Todorova, P. Stefanov, A. Naydenov, H. Kolev,

„Catalytic oxidation of methane over Pd-MeOx (Me = Mn, Co, Ni, Ce) catalysts – influence of metal oxides“;
Rev. Roum. Chim., 59 (3-4) (2014) 251-257 (**IF_{2014} = 0.393**), ***Q3, 15 m.***
линк към абстракта

7. S. Todorova, I. Yordanova, A. Naydenov, H. Kolev, Z. Cherkezova-Zhelev, K. Tenchev, B. Kunev, „Cobalt-manganese supported oxides as catalysts for complete *n*-hexane and methane oxidation: relationship between structure and catalytic activity“;
Rev. Roum. Chim., 59 (2014) 259-265 ***(IF_{2014} = 0.393)., Q3, 15 m.***
линк към абстракта

8. I. Yordanova, Z. Cherkezova-Zheleva, , D. Paneva S. Todorova, M.Shopska, H. Kolev, Ž. Čupić, I. Mitov, „Physico-chemical characterization of nanosized $LaFeO_3$ perovskite“, Nanoscience and Nanotechnology, issue 14, (Eds. E. Balabanova, E. Mileva), (*2014) 151-154,*

Abstract: The perovskite oxides have a general formula ABO^3 (A cation of larger size than B). This study is focused on the physico-chemical characterization and investigation of perovskite materials and their relevance to heterogeneous catalysis. The redox properties of the B cation, the availability of weakly bonded oxygen on the surface and the presence of lattice defects have often been claimed as responsible for their catalytic activity. The possibility of synthesizing multicomponent perovskites by partial substitution of cations in positions A or B, gives rise to substituted compounds with unusual oxidation states in the crystal structure. In this paper we have synthesized $LaFeO_3$ perovskite and we have studied the sample by Mössbauer, XRD, IR and XPS Spectroscopies.

9. P. Stefanov, S. Todorova, A. Naydenov, B. Tzaneva, H. Kolev, G. Atanasova, D. Stoyanova, Y. Karakirova, K. Alexieva, „On the development of active and stable Pd-Co/γ-Al_2O_3 catalyst for complete oxidation of methane“;
Chem. Eng. 266 (2015) 329-338, (**IF_{2015} = 4.058)** ***Q1, 25 m.***
линк към абстракта

10. S. Zh. Todorova, Z. P. Cherkezova-Zheleva, I. D. Yordanova, A. Ganguly, H. G. Kolev, S. Mondal, M. G. Shopska, K. K. Tenchev, N. I. Velinov, A. K. Ganguli, G. B. Kadinov “Nano-sized iron oxides with controlled size modified with Pd for purification processes”
Bulg. Chem. Commun., 47 (2015) 424-430 (**IF_{2015}= 0.349**) ***Q4 , 12 m.***
линк към абстракта

11. S.Todorova, A. Ganguly, A. Naydenov, H. Kolev, I. Yordanova, M. Shopska, S. Monda, G. Kadinov, S. Saha, A. K.Ganguli
“Nanosized cobalt oxides modified with palladium for oxidation of methane and carbon monoxide”
Bulg. Chem. Commun. 47, Special issue C (2015) 42– 48 **Q4, 12 m.**
линк към абстракта

12. M. Shopska, S.Todorova, I. Yordanova, S. Mondal, G. Kadinov,
“Comparative analysis of the catalytic behaviour in CO oxidation of iron containing materials obtained by abiotic and biotic methods and after thermal treatment”
Bulg. Chem. Commun. 47, Special issue C (2015) 73– 78 **Q4, 12 m.**
линк към абстракта

13. I. Yordanova, S. Todorova, H. Kolev, K. Tenchev

“Cobalt-manganese supported oxides as catalysts for complete *n*-hexane oxidation and CO removal in hydrogen rich gases”
Nanoscience & Nanotechnology, 15, No 2 (eds. E. Balabanova, E. Mileva), 2015, 14-18,

***Abstract**. Single-component Co and Mn and bi-component Co – Mn samples deposited by precipitation with ammonia on SiO2 were prepared. The catalysts were characterized by X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), temperature programmed reduction (TPR) and tested in reaction of n-hexane combustion and preferential CO oxidation in H2 rich gases. The enhanced catalytic activity of bi-component CoMn samples in n-hexane oxidation was explained with increased concentration of the accessible active sites as a result of very low crystallinity of the cobalt, manganese and mixed Co-Mn oxide and the simultaneously presence of* Mn^{4+}*–*Mn^{3+} *couple. The highest activity in PROX reaction was established for single-component cobalt sample.*

14. *S. Todorova*, I. Yordanova, H. Kolev, M. Shopska, S. Mondal, Z. Cherkezova-Zheleva, A.K. Ganguli and A. Ganguly, „Nano-sized iron oxides with controlled size modified with Pt for CO oxidation“,
Nanoscience & Nanotechnology, 15, No 2 eds. E. Balabanova, E. Mileva, Sofia, 2015, 10-13.

***Abstract**.* Fe_3O_4 *nanosized-oxide was prepared by wet chemical procedure and it was modified with platinum. The catalysts were characterized by X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), transmission electron microscopy (TEM), temperature programmed reduction (TPR) and diffuse reflectance infrared spectroscopy (DRIRS). The catalytic performance of* Fe_2O_3 *and Pt/* Fe_2O_3 *after reduction and oxidation was examined in the reaction of CO oxidation. Strong interaction between Pt and the iron oxide was established leading to the formation of finely divided Pt species on the surface. Remarkable increase in the catalytic activity was found after Fe2O3 modification with Pt. This feature was explained with the ability of the iron oxide, located in the close proximity to Pt, to provide active oxygen species that can subsequently react with CO molecules adsorbed on adjacent Pt sites. The decrease in activity of Pt modified iron oxide after reductive pretreatment could be ascribed to partial decoration of Pt with iron oxide, and blocking of some active sites of Pt.*

15. M. Shopska, D. Paneva, G. Kadinov, S. Todorova, M. Fabián, I. Yordanova, Z. Cherkezova-Zheleva, I. Mitov
„Composition and catalytic behavior in CO oxidation of biogenic iron-containing materials “
Reac. Kinet. Mechans Catal.: 118 (1) (2016) 179-198 ***Q3, 15 m.***
линк към абстракта

16. I. Yordanova, S. Todorova, H. Kolev, Z. Cherkezova-Zheleva
„Co-Mn mixed oxide catalysts for purification of waste gases from n-hexane“
Bulg. Chem. Commun, 49 (2017) Special Issue G 99 –104 ***Q4, 12 m.***
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17. B. Tzaneva, A. Naydenov, S. Todorova, V. Videkov, V. Milusheva, P. Stefanov
„ Cobalt electrodeposition in nanoporous anodic aluminium oxide for application as catalyst for methane combustion“
Electrochimica Acta 191 (2016) 192-199 Q1, 25 m.
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18. M. Filipa, S. Todorova, M. Shopska, M. Ciobanu, F.Papa, S.a Somacescu, C. Munteanu, V.Parvulescua

"Effects of Ti loading on activity and redox behavior of metals in PtCeTi/KIT-6 catalysts for CH_4 and CO oxidation"
Catal. Today 306 (2018) 138–144) ***Q1, 25 m.***
линк към абстракта

19. M. Shopska, G. Kadinov, D. Paneva, I. Yordanova, D. Kovacheva, A. Naydenov, S. Todorova, Z. Cherkezova-Zheleva, I. Mitov
„Biogenic iron-containing materials synthesised in modified Lieske medium:composition, porous structure, and catalytic activity in *n*-hexane oxidation"
Bulg. Chem. Commun. 50 Special issue H (2018) 40–48 ***Q4, 12 m.***
линк към абстракта

20. T. Petrova, N. Velinov, D. Filkova, I. Ivanova, I. Ivanov, I.Yordanova, S. Todorova, V. Idakiev, N. Petrov, I.Mitov
'Synthesis and characterization of supported spinel ferrite catalysts'
J. Chem. Technol. Metall. 53 (6) (2018) 1186-119, ***SJR, 10 m***.
линк към абстракта

21. S. Todorova, A. Naydenov, H. Kolev, G. Ivanov, A.,Ganguly, S. Mondal, S. Saha, A.K. A.Ganguli,
"Reaction kinetics and mechanism of complete methane oxidation on Pd/Mn_2O_3 catalyst "
React. Kinet. Mech. Catal, 123 (2) (2018) 585-605 ***Q3, 15 m.***
линк към абстракта

22. S. Todorova, H.G Kolev, M.G. Shopska, G.B Kadinov, J.P. Holgado, A Caballero.
"Silver-based catalysts for preferential CO oxidation in hydrogen-rich gases (PROX)"
Bulg.Chem. Comm. (2018) *50 17-23.* ***Q4 12***
линк към абстракта

23. S. Todorova, A. Naydenov, H. Kolev, A. Larin, K. Tenchev
"Catalytic oxidation of methane over Co modified Pd/Al_2O_3 catalysts – influence of the cobalt loading"
Int. J. Adv. Sci. Eng. Techn. 6 (3) 64-69
Abstract *- The study is focused on the development of highly active and stablePd/Al2O3 catalyst for combustion of methane by varying the Co loading. The catalysts were characterized by X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), transmission electron microscopy (TEM) and temperature-programmed reduction (TPR).The catalytic tests show that the most active sample is Pd/0.25Co. The results from different physicochemical characterization indicate the present of palladium as Pd0 and Pd2+ (as PdO) and cobalt as Co-Al spinel like phase on the catalyst surface. We suggest that occurrence of Co-Al phase plays a significant role for the stabilization of the palladium as PdO, leading to high activity and stability in methane combustion.*

24. S. Todorova, A. Naydenov, R. Velinova, H. Kolev, A.V. Larin, D. Stoyanova, M. Shopska, K. Tenchev, P.Stefanov,
$Pd–MeOx/Al_2O_3$ (Me = Co, La, Ce) catalysts for methane combustion
React. Kinet. Mech. Catal. 126 (2019) 663–678, ***Q3, 15 m.***
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25. A. A. Rybakov, I.A. Bryukhanov, A.V. Larin, S. Todorova, G.M. Zhidomirov
"Different limits for convergent Pd-Pd lengths in Pd slabs grown over different oxides"
Struct Chem 30 (2019) 489-500, ***Q2, 20 m.***

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26. R. Velinova, S. Todorova, Boris Drenchev, G. Ivanov, M. Shipochka, P.Markov, D. Nihtianova, D. Kovacheva, A. V. Larine, A. Naydenov
"Complex study of the activity, stability and sulphur resistance of Pd/La_2O_3- CeO_2-Al_2O_3 system as monolithic catalyst for abatement of methane"
Chem. Eng. J. 368 (2019) 865–876, ***Q1, 25 т.***
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27. S. Todorova, J. L. Blin, A. Naydenov, B. Lebeau, H Kolev, P. Gaudin, A. Dotzeva, R. Velinova, D. Filkova, I.Ivanova, L. Vidal, L. Michelin, L. Josien, K. Tenchev
"Co_3O_4-MnO_x oxides supported on SBA-15 for CO and VOCs oxidation"
Catal. Today https://doi.org/10.1016/j.cattod.2019.05.018, ***Q1, 25 т.***
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