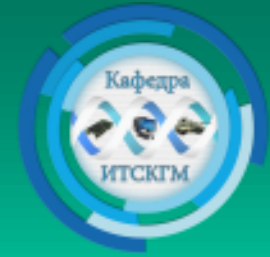




“Information Technology & Systems of Wheeled and Tracked Vehicles”



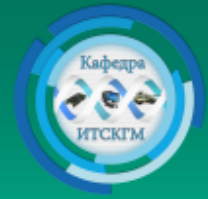
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Head of Department Prof. Dmitriy Volontsevich

Academician of the Academy of Sciences of Higher Education of Ukraine,
Laureate of the 2015 State Prize of Ukraine in the field of science and technology

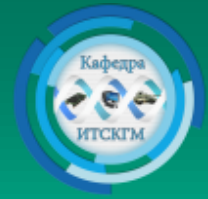
DEPARTMENT
“INFORMATION TECHNOLOGY & SYSTEMS OF WHEELED AND
TRACKED VEHICLES”



Specials and specialization:

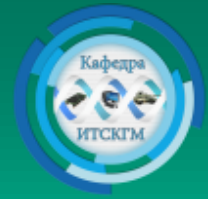
- Electrical systems and complexes of vehicles***
- Information technologies***
- Wheeled and tracked vehicles***

The Department lets out Bachelors and Masters



Topics of scientific research of the Department :

- 1. Modeling of the process of movement in the terrain wheeled and tracked vehicles to determine the design parameters for the CAD design.***
- 2. Computer-aided design of kinematic schemes of planetary gearboxes with two or three degrees of freedom on the set transmission ratio.***



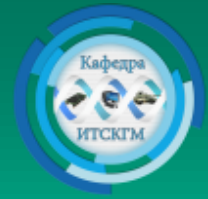
Topics of scientific research of the Department:

3. Integrated increasing mobility and manageability of tracked and wheeled vehicles:

1) Improving governance and average speeds of traffic on the roads and on rough terrain wheeled vehicles by establishing rational schemes transmissions onboard and bridge way power distribution and optimization of their parameters, which will allow to organize a force rotation, to increase the dynamic suspension travel and reduce the volume of the wheel arches to steered wheels.

2) Improving governance and average speeds of traffic on the roads and on rough terrain tracked vehicles through the establishment of efficient schemes of planetary transmissions onboard and optimize their parameters by the criterion of maximum agility when approaching fixed turning radius to the limits established by the criterion of partial mole.

3) Increase the average speeds tracked and wheeled vehicles on roads and on rough terrain due to the implementation of functional and physical analysis and synthesis of more effective systems of suspension.



Topics of scientific research of the Department:

4. Create a new nanostructured ceramics and other materials for industrial applications:

1) Structural nanoceramics:

- a) Instrument and transport engineering;*
- b) blades and elements of the gas turbine and rotary engines, internal combustion engines, wind turbines.*

2) Cutting tools (inserts and complex-tools);

3) Functional nanoceramics:

- a) Optical elements for laser technology and infrared optics;*
- b) sorbents for the purification of liquid media from radionuclides and heavy metal salts;*
- c) Bioengineering ceramics for implants;*

4) Filters for industry (eg cleaning liquid aluminum)

and others...



FOR EXAMPLE:

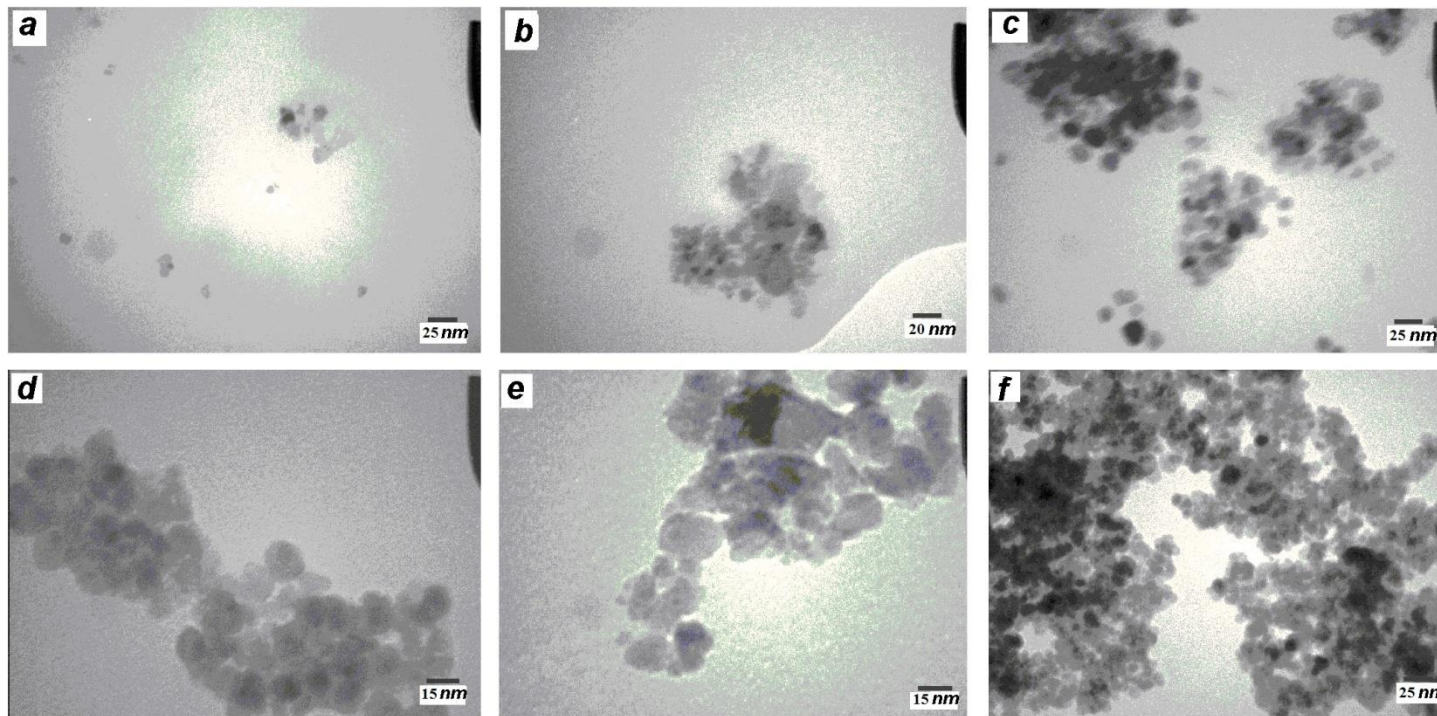
- One of the most effective and simple methods of natural and waste waters from heavy metals and radionuclides purification is a sorption extraction.
- As sorbents proposed the use of polymers, natural materials, and other oxides.
- The particles of iron oxide Fe_2O_3 and Fe_3O_4 are among the most promising materials for inorganic heavy metal ions and radionuclides from water bodies. Their advantage over other compounds is the lack of toxic effects on the human body, low cost and ease of precursors obtaining.

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TEM photomicrographs Fe_3O_4 particles produced from iron chloride and sulphate solution of $c(\text{Fe}^{3+}): c(\text{Fe}^{2+})$ in ratio of 2:1 at pH 8-9:

- a) at $T=15^\circ\text{C}$, and $C(\text{Fe})=0.15\text{M}$; b) at $T=15^\circ\text{C}$, and $C(\text{Fe})=0.3\text{M}$; c) at $T=15^\circ\text{C}$, and $C(\text{Fe})=1\text{M}$; d) at $T=60^\circ\text{C}$, and $C(\text{Fe})=0.15\text{M}$; e) at $T=60^\circ\text{C}$, and $C(\text{Fe})=0.3\text{M}$; f) at $T=60^\circ\text{C}$, and $C(\text{Fe})=1\text{M}$.



We are open for cooperation!

