МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

МАТЕРІАЛИ XI ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ СТУДЕНТІВ АСПІРАНТІВ ТА ВИКЛАДАЧІВ ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ КАФЕДРИ ІНОЗЕМНИХ МОВ

“TO MAKE THE WORLD SMARTER AND SAFER”

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"TO MAKE THE WORLD SMARTER AND SAFER"

(Sumy, March 23, 2017)

scientists will increase in future and the problem will be solved. It would be a great step for creating the artificial intelligence.

THE USE OF NANO-ROBOTS IN MEDICINE

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Today, more and more people question the treatment without surgery. Thanks to modern research and the efforts of scientists a new possible way to use nano-robots was invented. The first thing to know about nanorobots in medicine is that they're not like the robots you're probably imagining. Scientists who build nanorobots are building tiny packages that can complete tasks in an automated way.

The design and use of such devices will bring a number of advantages. Moreover, they will provide medication or, at least, control or reduction of the impact of diseases. Also they will provide valuable empirical evidence for improvement and further development of such machines. Practical information received from these transactions at the microscopic level will eliminate a number of false paths and point the way to more effective methods in solving the problems inherent in working at this level.

Firstly, we must decide which way to introduce these robots into the body. The most likely way is to put them in the blood because the human body is penetrated by blood vessels and capillaries, and sizes of robots almost comparable with them. Another goal is to decide on a way to deliver nanobots to problem zones. There are two options: the first - the robot will get it to the right place automatically, moving through bloodstream, and the second is to manage it using special devices. The very first Feynman prize in Nanotechnology was awarded to William McLellan for building an electric motor that fits within a cube 1/64th of an inch on a side. This is probably smaller than we would need for our preliminary microrobot. One or several of these motors could be used to power propellers that would push (or pull) the microrobot through the bloodstream. We must create design propellers which would not cause damage to tissues. One idea is to create a robot with remote

control over the actions and movements that can be observed with the camera. We will be able to control the actions of nanorobots and guide it to the right place.

Secondly, we must decide how nanobots will determine the threat or damaged area (tissue). There are several ways to solve this problem. First, enter a radioactive substance into a blood stream so that it couldn't cause significant harm to the body, and will be controlled by means of a fluoroscope or some other radiation-sensitive imaging system. The main advantage of this method is that the substance will move with the bot and will be fully traceable from the beginning to the end. The second way is to use ultrasound waves that will pass through the tissue and bounce back. This will enable to determine the material through which the signal passed.

Since the control of nanomachines is not a difficult issue, then delivery of this robot to the body will not be problematic. We must repeat the same procedure to remove this unit out of the body (through the blood vessels) or do it in a natural way. The second method is the most reasonable for use, but in this case we can inflict the most damage to the structure. We have to reduce all risks to ensure that it is not necessary to eliminate nanobots surgically.

In conclusion, we claim that our most important goal for today is to create effective and practical nanorobots, reframe technology which already exists. It should be our scientists and engineers' priority. The era of incurable diseases will soon come to its end and we eyewitness this process. A concerted development effort could have a working model of the microrobot ready within a year or two, and this would certainly advance the development of nanotechnology.