

UDC 7.05:687.01=111

Lahoda Oksana¹, *Ph.D. of Arts,
Associate Professor, Department of Design
Cherkasy State Technological University
E-mail: oxanalagoda@gmail.com*

INNOVATING TECHNOLOGIES IN MODERN FASHION DESIGN

***Abstract:** In the whole, this article tells us about the role of innovative technologies and their inculcation in to fashion industry, the influence of innovating productions and innovative technologies in the clothesdesign. The author carried out the analysis of the scientific achievements in the sphere of innovative technologies investigation and also brought out to light and characterized the tendencies of their usage in a modern costume. The author shows us examples of the most perspective innovations in the design of textile materials and the technologies of the clothescreation. Besides, a global problem caused by the inculcation of innovations the essence of which consists of the contradiction between the main functions clothes as things themselves and their image-style decision as a man's image in a costume is marked in the whole. In the author's opinion, it is just this aspect of modern design has been the most actual and perspective direction of future investigations.*

***Keywords:** fashion, fashion design and textiles, innovative products, innovative technologies.*

Problem statement. Modern fashion design is oriented to clear, high technological and saving resolves productions. The development of the key industry determines the designers' experiments with technologies and materials on the whole but their usage influences the processes of the forming, the costume structure and sometimes changes the functional fixing and aesthetic perception of the things radically. The fashion in modern costume design innovation activates the contradictions between clothes wearing (practice, ergonomics and ecology), stylistic functions of a costume as a marker of individuality narration.

¹©Lahoda O.

Analysis of the recent researches. In some scientific publications E. Amosova [1], I. Boldyreva [2], T. Vasilyeva [3] examine innovations in design, formulate definitions and individual terms, classify existing innovation in selective criteria and also base the complex of methods in the investigation of innovating achievements. They determine “the innovation” as a positive characteristic. Nowadays they underline that it is used according to the most different processes and things indicating their better equality. The definitions of the innovations in dictionaries suppose that the innovations in the fields of engineering, technologies, the organization of individual processes of lab our conditions or the methods of leadership which establish the achievements of science and advanced experience are innovative. It provides qualitative increase of the efficiency of industrial system or the quality of its production (profit, creativeness, progress). The innovations are the result of successful investment into the receiving of new knowledge, the elaboration of innovative, perspective, advanced ideas which are pouring out into renovation or change of engineering and technologies, into the economic growth at the expense of discoveries, the achievements of the scientific technological progress, the rationalization of production of something on the whole [1].

The investigators divide technological innovations to “productive” and “process full”. The inculcation of a new product is a radical productive innovation. It is conditional by new technologies or combination of existing technologies in their new application that changes valuable or qualitative indices on principle. The “process full” innovation supposes mastering new or considerably improved methods of the production and technologies – the changes in their equipment or the organization of production [1].

The innovations are also classified as the novelty degree, new (analogies are absent) and relatively new (improved) on principle. As a rule, the new innovations are original samples. On their basis they receive the imitations of innovations by means of circulation. The improved innovations are divided in to additional, ousting, substituting, improving technologies, engineering product as the subject-rich in content structures. In a modern clothes’ design the investigator T. Vasilyeva divides the inculcation of the innovative

technologies into such directions: phabritceutica, biomimetic, integral, “clever” or luminous clothes [3]. Phabritceutica is a synthesis of the pharmaceutical and textile achievements of branches of industry. For example, the fabrics with microcapsule which are open and saturate the human’s skin with its necessary substances. In the contact with the skin biomimetic is an original way which is widely used in modern nanotechnologies. It changes the structure of fabrics. Its main point is to use successful decision of any problem in such aspect that the nature proposes it itself. Thanks to biometric the world received unique water repulsive, cleaning fabric, breathing materials, which absorb and neutralize smells. The science of bioengineering also studies bioactive materials which contain living bacteria. Thanks to them fabrics lives its own life practically [3].

Integral clothes are the clothes from textile to which micro and nano electronics, micro electromechanical systems are pressed. Such clothes may be used as the means of connection or a personal computer. The exoskeleton (out word skeleton) widens physical possibilities of a man essentially. The “clever” clothes from textile are capable to remember contours of the body of its owner react to the environment’s changes, for example – the changes of temperature [5]. The light-radiating clothes are made from fabrics which is capable to radiate the light itself. You may switch on or switch off this light by distance. Such fabric is weaved from thin optical light radiating fiber, and you may change the colors of radiation.

Article purposes is to analyse the changes and tendencies of the development of innovating technologies in modern fashion design and textiles at the latest time.

The main part. Nowadays it is very complicated to surprise somebody by “the liquid fabric” or the clothes from the cylinder. The costumes-transformers or robot clothes have already gone out of fantastic films and fashion-platform podiums behind limits. Innovative fabrics have anti-inflammatory, disinfections, the very restoring qualities under insignificant damages. They may support warmth and cold, conduct the electric current. Practically all indicating innovations have been inculcated into real production and the consumers use them in everyday life. Among innovative textile products such materials as Lyocell (Tencel), the modification of rayon, and microfiber – a

synthetically material which doesn't make way to the natural materials by its parameters is the most used in everyday life [6]. The clothes from microfiber create "the second skin" of a man. Thanks to nanotechnologies the Americans created the material with wax capsules. It is considered that these materials will make the clothes more comfortable [7].

In modern fashion industry the innovations may be picked out in such segments as business innovations the organization and the distribution of labour, the optimization of the seller's markets of production, purchases and sales, the advertisement, marketing strategies, the organization of shows-defile, innovating products (fabrics and unwoven fabrics) – textile materials, the technologies of their manufacture and giving them special qualities, ways of decoration and adornment of fabrics, technologies of clothes making which include the technologies of projection, designing, modeling, cutting-out and also the technologies of sewing.

All of them are oriented to computerization, virtualization and 3D-modelling. Modern enterprises have already been equipped with automatized system of production (A.S.P.) which is improving constantly. The professional designers use 3-coordinations patterns, the computer constructions, fitting and selection of fiber on 3D-mannequins, virtual fitting-rooms, various planned visualization. The automation process of cutting-out are mechanized and provided under such tendencies of production. The innovations of the processes of connection the details of the article are developed in two directions. The equipment for traditional sewing of articles together is improved and innovative technologies and technique for sticking together, soldering, welding of details are worked out.

For example, Issey Miyake, a Japanese designer, demonstrated the collection of fabrics created without threads and sewing-machine in 2016 [8]. The innovative technology for dyeing and baking of models gave tremendous effect (Fig.1). The designer is considered to be one of the pioneers in innovations of clothes created from the only piece of cloth of a simple form with processing minimum freely. The designer began his experiments in 1976. The experiments change the philosophy of using clothes practically because they bring the man to

intellectual recomprehend of his clothes, to new formations in categories of clothes [9].



Fig.1. Innovative technology in the collection of I. Miyake. 2016.

The similar punctual complications stipulate the creation of simple forming things with new qualitative characteristics by designers. The clothes typed on 3D-printer demonstrate absolutely other outward dates. They are rather cumbersome, compound and fantastic forms of the costumes' structures (Fig.2).



Fig.2. 3D-printed dress as innovative technology.

They are impossible to wear in everyday life [10]. However, the designers promise us that functionality and practice of 3D-things are also the question of time. Iris van Herpen, the Dutch designer, has considerable success in 3D-printing of clothes. She showed her first collection of 3D-clothes in 2011. The designer takes experiment with such technologies as the “Paper pressing” and “Vacuum smelting”, using plastic, polymers, and soft metals – aluminum on copper. Nowadays Iris uses plastic and light nylon, easy, smelting plastic and Plexiglas [11; 12]. The “Icy dress” from Haute couture collection spring-summer 2017 impresses especially (Fig.3). It is necessary to examine it as a work of Art, a bright artistic image but it’s impossible to wear this dress at all [13].



Fig.3. “Icy dress” J. van Herp. Collection 2016-2017.

Francis Bitonti, the American, tries to create similar clothes with the help of 3D-printing. In 2013 Dita von Teese appeared in this designer’s dress at one of the fashion measure. 17 details of nylon were gathered by hand. These details were decorated with 13000 Swarovski crystals [14]. The original style-imaged decision of this

smart dress made it as an art-object. Besides it demonstrated the tendency of the application and development of innovative technologies of clothes on the basis of the 3D-printing (Fig.4-5).

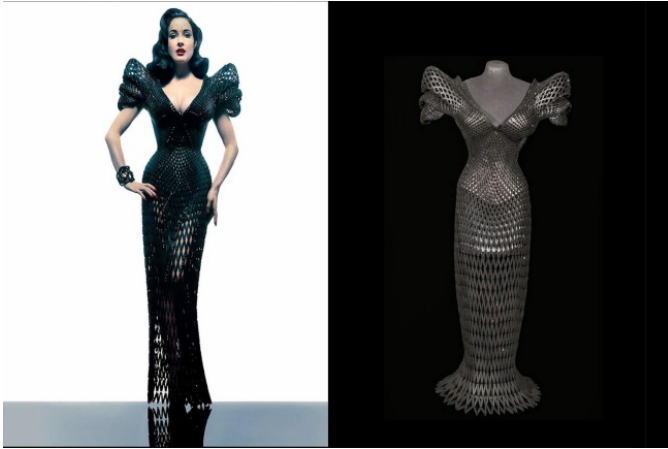


Fig 4-5. D. Von Teese in 3D-dress by F. Bitonti. 2013.

High technologies connected with the human's body develop actively. One of bright examples is "the dress with butterflies" (Ezra + Tuba Brand). This techno project is known by 40 synthetic butterflies who can reach on the environment. When they are in a quiet state, they create the original décor on the shoulders of their dress's owner. The dress itself made from jacquard fabric with metal thread. The butterflies "rest" in a quiet state flapping by wings sometimes. When somebody approaches the owner they began to tremble (Fig.6). Under the maximum rapprochement they fly up leaving the dress [15]. They fly in different directions. Nowadays this innovation is perceived on the verge of fantasy. But if we think more seriously those experiments will take us to fundamental clothes definition. The meaning of this definition is "my clothes are my home, my castle". The initial function of defense from the external threats of the 21st century, acquires quite new sounding. Fashion was always connected with Art. It's possible to add innovative technologies to this duet nowadays. The synthesis of Fashion, Art

and Technologies indicates the development of a new direction in fashion design. The fashion analysts have called it Fashion-tech.



Fig.6. Interactive dress with butterflies on the brand Ezra + Tuba.

Conclusions. In the whole the modern fashion design and also fashion industry may be acknowledged to the inculcation of innovating technologies. Such technologies may be used in all stages of clothes creating: the projection, the construction, modeling and making clothes. The segment connected with creation of innovating textile materials with unique qualities is developed the most actively.

There is a necessity to find out what innovations are a component of modern design and artistic activity. Their influence is obvious on formation of forms of costume and their stylish decision. This determines the image of the costume and his artistic-aesthetic qualities. This aspect must be studied.

Research perspectives of the influence of innovative technologies in to the style and form creation, their common features with the costume image and the artistically-aesthetic qualities determine the new actual direction in the development of the theory of modern design.

References

1. *Амосова Э. Ю.* Влияние инновационных технологий и материалов на формирование модных тенденций в развитии костюма : ав-т дис. ... к.т.н: 17.00.06. Московский государственный текстильный университет им. А.Н. Косыгина. М., 2010. 16 с.

2. *Болдырева Л. М.* Инновации в методах проектирования женской одежды. *Научно-методический электронный журнал "Концепт"*. 2016. Т. 15. С. 1556-1560. URL : <http://e-koncept.ru/2016/96230.htm>

3. *Васильева Т.С.* Влияние новых технологий на формирование в дизайне одежды: на примере светодизайна костюма : дис. канд. искус.: 17.00.06. Всероссийский научно-исследовательский ин-т технической эстетики. М., 2011. 193 с.

4. *Качурова Е. А., Митрофанова Н. Ю., Мальгунова Н. А.* Оптоволоконные ткани – новое направление в дизайне текстиля. *Дизайн. Материалы. Технология*. 2016. № 1. С. 33–35.

5. *Щербина Д.* “Умная” одежда и нательные технологии [Электронный ресурс]. URL : <http://www.nanonewsnet.ru/articles/2015/umnaya-odezhda-natelnye-tehnologii>

6. *Лиоцелл* – искусственное волокно с “натуральными” свойствами [Электронный ресурс]. URL : статья на сайте TextileTrend.ru <http://textiletrend.ru/protkani/iskusstvennyie/liotsell.html>

7. Микроволокна в одежде и не только: микроволокна (микрофибра) и ткани из них. [Электронный ресурс]. URL : <http://sewingschool.ru/articles/microfiber.php>

8. *Иссей Мияке* – дизайнер пропагандирующий инновации [Электронный ресурс]. URL : <http://www.tryapie.net/2015/10/issey-miyake-designer-propagandiruyushiy-innovacii/>

9. *Карчик Е.* Иссей Мияке. [Электронный ресурс]. URL : <http://www.totallook.by/blog/item/306-issey-miyake/306-issey-miyake>

10. Печать одежды на 3D принтере. [Электронный ресурс]. URL : <http://make-3d.ru/articles/pechat-odezhdy-na-3d-printere/>

11. Коллекция Iris Van Herpen 2016-2017. [Электронный ресурс]. URL : <http://mylitta.ru/2728-iris-van-herpen-2016-2017.html>

12. *Iris Van Herpen*. Couture [Электронный ресурс]. URL : <http://www.irisvanherpen.com/>

13. Сенсация модных показов в Париже: ледяное платье, отпечатанное на 3D-принтере [Электронный ресурс]. URL : <http://www.novate.ru/blogs/081014/28044/>

14. Revealing Dita von Teese in a Fully Articulated 3D Printed Gown [Электронный ресурс]. URL : <http://www.shapeways.com/blog/archives/1952-revealing-dita-von-teese-in-a-fully-articulated-3d-printed-gown.html>

15. Метаморфозы моды: “живые” бабочки на ярком платье [Электронный ресурс]. URL : https://iq.intel.ru/platy_e_babochka/

Transliteration

1. *Amosova E. Yu.* Vliyanie innovacionnyh tehnologiy i materialov na formirovanie modnyh tendency v razvitii kostyuma [Tekst]: av-t dis. ... k. t. n: 17.00.06. Moskovskiy gosudarstvennyy tekstilnyy universitet im. A.N. Kosygina. M., 2010. 16 s.

2. *Boldyreva L. M.* Innovacii v metodah proektirovaniya zhenskoy odezhdy. *Nauchno-metodicheskiy elektronnyy zhurnal “Koncept”*. 2016. T. 15. S. 1556–1560. URL : <http://e-koncept.ru/2016/96230.htm>

3. *Vasileva T. S.* Vliyanie novyh tehnologiy na formoobrazovanie v dizayne odezhdy: na primere svetodizayna kostyuma : dis. kand. iskus.: 17.00.06. Vserossiyskiy nauchno-issledovatel'skiy in-t tehnicheckoy estetiki. M., 2011. 193 s.: il.

4. *Kachurova E. A., Mitrofanova N. Yu., Malgunova N. A.* Optovolokonnye tkani – novoe napravlenie v dizayne tekstilya. *Dizayn. Materialy. Tehnologiya*. 2016. № 1. S. 33–35.

5. *Scherbina D.* “Umnaya” odezhdha i natelnye tehnologii [el. resurs]. Rezhim dostupa: <http://www.nanonewsnet.ru/articles/2015/umnaya-odezhda-natelnye-tehnologii>

6. *Liocell* – iskusstvennoe volokno s “naturalnymi” svoystvami [Electronic resource]. URL : <http://textiletrend.ru/pro-tkani/iskusstvennyie/liocell.html>

7. Mikrovolokna v odezhde i ne tolko: mikrovolokna (mikrofibra) i tkani iz nih [Electronic resource]. URL : <http://sewingschool.ru/articles/microfiber.php>

8. *Issey Miyake* – dizayner propagandiruyushiy innovacii [Electronic resource]. URL : <http://www.tryapie.net/2015/10/issey-miyake-designer-propagandiruyushiy-innovacii/>

9. *Karchik E.* Issey Miyake [Electronic resource]. URL : <http://www.totallook.by/blog/item/306-issey-miyake/306-issey-miyake>

10. Pechat odezhdy na 3D printere [Electronic resource]. URL : <http://make-3d.ru/articles/pechat-odezhdy-na-3d-printere/>

11. Kolleksiya Iris Van Herpen 2016-2017 [Electronic resource]. URL : <http://mylitta.ru/2728-iris-van-herpen-2016-2017.html>

12. *Iris Van Herpen.* Couture [Electronic resource]. URL : <http://www.irisvanherpen.com/>

13. Sensaciya modnyh pokazov v Parizhe: ledyanoe plate, otpechatannoe na 3D-printere [Electronic resource]. URL : <http://www.novate.ru/blogs/081014/28044/>

14. Revealing Dita von Teese in a Fully Articulated 3D Printed Gown [Electronic resource]. URL : <http://www.shapeways.com/blog/archives/1952-revealing-dita-von-teese-in-a-fully-articulated-3d-printed-gown.html>

15. Metamorfozy mody: “zhivye” babochki na yarkom plate [Electronic resource]. URL : https://iq.intel.ru/platye_babochka/

Аннотация:

Лагода О.Н. Инновационные технологии в современном дизайне одежды. В статье рассматривается роль инновационных технологий и их внедрение в индустрии моды, влияние инновационных продуктов и инновационных процессов на дизайн одежды в целом. Автором проведен анализ научных достижений в сфере исследования инновационных технологий, а также выявлены и охарактеризованы тенденции их внедрения в современном костюме. Приведены примеры наиболее перспективных инноваций в дизайне текстильных материалов и технологий создания одежды. Кроме того, обозначена глобальная проблема, вызванная внедрением инноваций, суть

которой состоит в противоречии между основными функциями одежды, как вещи, и ее образно-стилевым решением, как образом человека в костюме в целом. По мнению автора, именно этот аспект современного дизайна является наиболее актуальным и перспективным направлением последующих исследований.

Ключевые слова: индустрия моды, дизайн одежды и текстиля, инновационные продукты, инновационные технологии.

Анотація:

Лагода О.М. Інноваційні технології в сучасному дизайні одягу. У статті розглянуто роль інноваційних технологій та їх впровадження в індустрії моди, вплив інноваційних продуктів та інноваційних технологій на дизайн одягу в цілому. Автором проведено аналіз наукових досягнень у сфері досліджень інноваційних технологій, а також виявлені та охарактеризовані тенденції їх впровадження в костюмі. Наведено приклади найбільш перспективних інновацій в дизайні текстильних матеріалів і технологій створення одягу. Окрім того, означена глобальна проблема, обумовлена впровадженням інновацій, суть якої полягає у протиріччі між основними функціями одягу, як речі, та його образно-стильовим вирішенням як образом людини в костюмі в цілому. На думку автора, саме цей аспект сучасного дизайну є найбільш актуальним і перспективним напрямом майбутніх досліджень.

Ключові слова: індустрія моди, дизайн одягу і текстилю, інноваційні продукти, інноваційні технології.

The article entered release in 04.02.2017 p.