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# Innovative Design Methods in Fur Production

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**ABSTRACT:** The article outlines innovative design methods and new technologies in the manufacture of fur products. The use of expensive semi-finished products and manufacturing methods, the great variability of physical and mechanical properties, determined by the natural and biological characteristics of animals, require comprehensive research on the development and formation of the principles of domestic design of fur products. The innovative design of fur clothing implies the inclusion of new methods for the design of semi-finished fur products and is focused on creating high-quality and aesthetically beautiful fur products.

**KEYWORDS:** fur clothing, fur cut, silhouette, Haute Couture, perforation.

## I.INTRODUCTION

The modern period is characterized by the ever-increasing importance of innovative design in fur garments. Designers use all its rich possibilities, as an inexhaustible source of inspiration, in order to demonstrate the original results of their work. From season to season, the fashion for the types of fur-fur semi-finished products and their combination with each other changes. At the same time, the emphasis of some seasons is the natural beauty of natural fur, while others are all the possible decorative effects of finishing the skins, i.e. the fashion changes to ways of decorating the fur. Fur clothes are becoming not only an attribute of luxury, but also as casual clothes. The basis for the development of the fur industry in Uzbekistan is karakul breeding. The experience of the world design of fur clothes, technology of formation of demand for the products of enterprises is becoming available to domestic designers. The formation of the fur industry in Uzbekistan lies in the practice of innovative design based on the implementation of historical traditions of Astrakhan handicrafts and types of innovative design to create competitive products. With the increasing availability of information from the global fur fashion, the behavior strategy of enterprises in the domestic fur industry is changing. Consequently, the marketing policy of domestic enterprises, along with market monitoring and the study of consumer preferences, should be aimed at popularizing the main trends of the world fur fashion in assortment groups of goods, by type of fur, pricing policy, product advertising [1]. The use of expensive semi-finished products and manufacturing methods, the great variability of physical and mechanical properties, determined by the natural and biological characteristics of animals, require comprehensive research on the development and formation of the principles of domestic design of fur products.

The innovative design of fur clothing implies the inclusion of new methods for the design of semi-finished fur products and is aimed at creating high-quality and aesthetically beautiful fur products made in small-scale serial production and which are objects of the developed outerwear design that have highly functional, ergonomic and technical and technological parameters [2]. In order to determine the trends of fashion development and improve the methods of designing clothes made from natural fur, the analysis of well-known fashion collections by compositional and structural features, reflecting the shape and design of models of fur clothing, is carried out. The results of the analysis made it possible to identify the main style-forming elements and establish the trend of their development. 100 models of Fashion House were selected as the object of study "Fendi" ("Fendi"), "Gianfranco Ferre" ("Gianfranco Ferre"), "Versace" ("Versace"), "Chanel" ("Chanel"); "Gucci" ("Gucci"); "Jean Paul Gaultier" ("Jean Paul Gaultier"); "Prada" ("Prada"); "Moschino" ("Mochino") and many other foreign publications for 2018-2020. [10-15]. For research, we chose models that have both traditional and original design solutions and the shape of the product. The form of clothing made of fur is characterized by the following elements: type of product, type of semi-finished fur product, type of arrangement of skins in a fur product, geometric view of the form as a whole and its parts (product silhouette), tailoring methods (stitching, dissolution, transfer, connection of various shapes small parts, weaving), structural and decorative elements of the shape, length of the product, cut sleeves and silhouette shape of the sleeve, etc. The results obtained made it possible to form an information fund for the outline design of fur products. The volumetric-spatial form of the products - the silhouette is formed by the stylistic solution of modern fur clothing [3]. The shape and direction of the constructive and constructive-decorative lines in natural fur clothes depend on the type and size of the skin, fashion direction, and trend recommendations [4]. Properties of leather fabric natural fur determine the main feature of manufacturing - the absence of wet-heat treatment to create a form. In fur clothing,

the configuration, direction and number of articulations is determined by the type of fur, the height of the hairline, the size of the fur-fur semi-finished product and the design of the product, the expansion of the color range of fur, the use of complex cutting methods and the diverse arrangement of skins in products, the combination and use of different types of fur in one products, combining leather, knitwear and other materials. The analysis showed that in the structure of foreign fur production and trade, finished products (outerwear) are approximately 100% (Fig. 1). In the collections as a whole, various types of outerwear made of fur were presented: coats (35%), short coats (30%), mantle (16%), vests (8%) and poncho (7%). Unlimited possibilities for updating and expanding the range of fur products are provided thanks to the annual release of semi-finished products of new color imitations, textures, expanding the color range of fur, using complex cutting methods and the diverse arrangement of skins in products, combining and using different types of fur in one product, combining fur with leather, knitwear and other materials (Fig. 1 a).

The most trendy types of fur: astrakhan fur (8%), astrakhan fur, (7%), muton (5%), mink (15%), arctic fox and fox (30), rabbit (5%), a combination of different types of fur (21%), chinchilla (5%), which are characteristic representatives in the classifications of species according to the length of the hairline: short-haired, medium-haired, long-haired (Fig. 1b). Clothing from the listed types of fur is presented in the range of all silhouette shapes - from adjacent to trapezoid and oval [5]

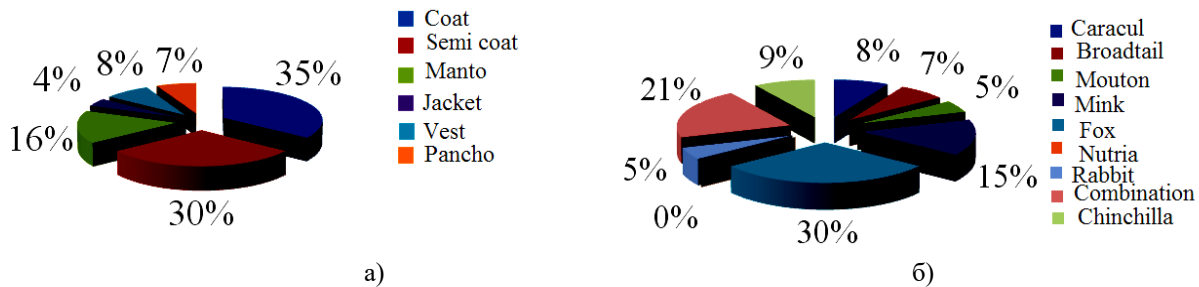


Fig. 1. The pattern of occurrence of models of fur clothing in the collections of world brands: Fig. 1 - types of clothing; fig. 2-types of fur

The main three parameters that the designer works with

The creation of fur products are color, shape and style. Moreover, there are three main styles of fur products: sports, neoclassic, luxury [6].

The studied fur products significantly differed from each other in cut (Fig. 2a), product length (Fig. 2b), structural and decorative elements of the form (Fig. 3a), cutting methods (Fig. 6-diagram), the location of the skins on camp and sleeve (Fig.3b). The most popular trend models with combined and transverse skins in the product. The number of articulations, their visualization, the presence of leather or suede details in the layout determined the price category of the product. Analysis of diagrams allows you to determine the trend in the development of fashion for women's fur clothing.

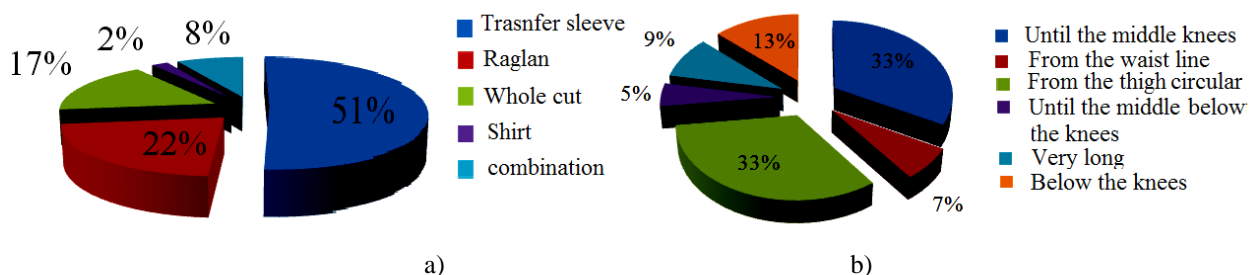


Fig. 2. Characteristics of the studied models of fur clothing: a - by the type of cut sleeves; b - along the length of the product

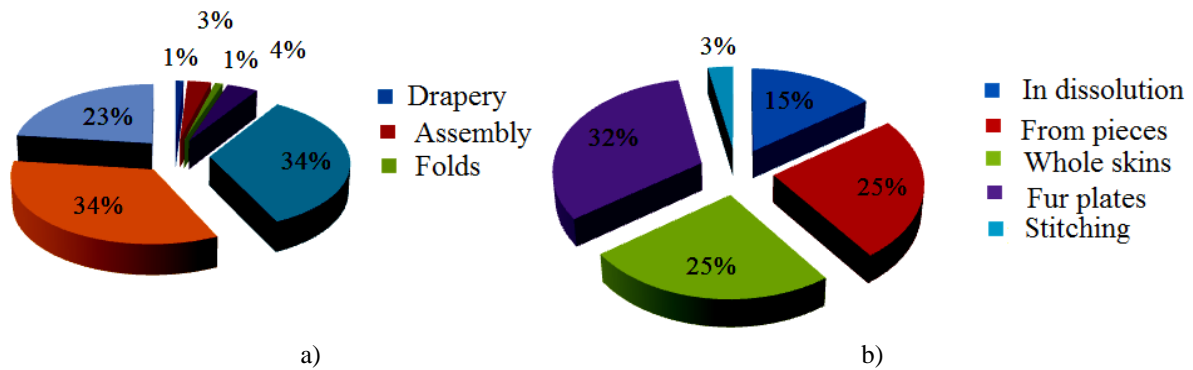


Fig. 3. Characteristics of the studied models of fur clothing: a - by the type of structural and decorative forms; b - according to the used cutting methods

The study showed that in modern trending models, visualization of shaping due to textured surface combinations of fur skins, which are created by various planar decorative effects in the process of sewing the product, is popular. They adorn the fur, without generally changing the visual perception of the volume of the skin. Modern dressing technologies allow you to create fur skins that are thin and plastic like silk fabric, which greatly facilitates the weight of the product and allows you to convert the texture of fur prefabricated. Designers of famous Fashion Houses today combine different textures of materials and the length of fur products, mix different styles, combining a “cage” pattern with light beige astrakhan, punk style with mink coats, sheared fur with genuine leather corsets [7].

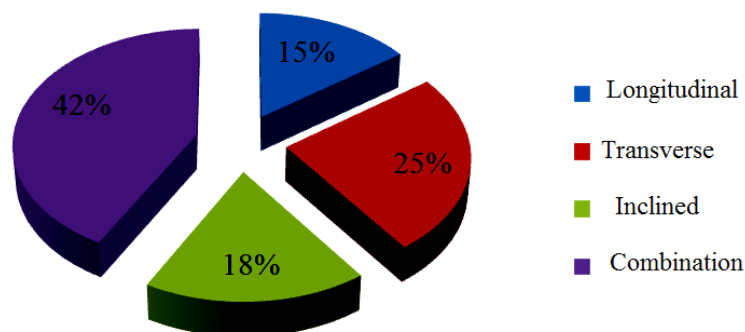


Fig. 4. Characteristics of the studied models of fur clothing by the type of arrangement of skins in fur coats

- fur-and-fur raw materials of "any" type are given special attention to maximizing linear dimensions and the area of fur skins, facilitating their weight, and obtaining skins with a thin, plastic, well-filled leather fabric. Such innovative design methods allow you to transform the surface of the fur, increase its aesthetic, operational quality indicators, increase the useful area of expensive fur and fur raw materials and create a fur product that meets the requirements of modern design, contribute to the targeted use of a fur flap or a low-grade semi-finished product, attracting buyers to the least valuable types of fur. When using such methods, many firms make changes to technological schemes for processing raw materials, taking into account the latest latest achievements.

Analysis of the innovative design methods of fur-fur semi-finished products revealed the following methods of plane dressing of skins: inlay, perforation, applique, blotches, fringe trim, dressing, embroidery on the skin of leather skins [8]

Inlay. This is a type of decorating products with patterns and images that are embedded in the surface and differ from it in color or material. Inlay of fur details or products consists in cutting a pattern on their surface and filling it with other material (leather, suede, furs, etc.). Inlay pattern can be solved:

- different color combinations of the same fur;
- the method of introducing one fur into another;
- combined way.

In the first case, by combining, for example, dark blue and white minks, you can create an ornament on any part of the product or on the surface of the entire part. It should only be borne in mind that cutting fur for an ornament needs to be designed from the same topographic sections of the skins, since the unequal hairline height will noticeably distort the pattern on the product [11-14].



Fig. 5. Models of a fur coat using the inlay method: PKZ Furs collection 2019-2020 Collection

The "Perforation" method provides the Use of inlays promotes the rational use of fur-fur semi-finished product, which has hairline defects. Crushing skins (skins) into parts with the formation of a pattern creates the possibility of inlaying in separate sections of the hide of its entire surface. In this case, parts of the same shape and size (for example, squares, circles) can be arranged in a manner so that the direction of the hairline in each square of the lobar and transverse rows or circles is opposite. In this case, the figures in which the direction of the hairline and the ray of light coincide will look light, shiny, and the rest will look dull, with a more dense tone. This method of plane dressing of skins is actively used in the development of foreign designers - the ZUKI brand, the international design center SAGA FURS and others [10]. Elements of the inlay pattern can be very different: geometric shapes (squares, rectangles, triangles, circles, etc.) and bioforms. the possibility of manufacturing a double-sided fabric from a prefabricated mink fur [9-10]. With the help of a stencil on leather fabric, markings are made of cuts located in a certain order. The resulting "casement windows" are folded back to the side of the skin tissue and adjusted on a furrier machine. The fur through the holes obtained is carefully straightened towards the skin tissue. Samples of models using the "Perforation" method are shown in Fig. 6.



Fig. 6. Perforations with an increase in the width of the skin



Application. Application (from lat. Application - application) - a way to create ornaments, images by tuning on one material multi-colored pieces of any material of a different color or finish, as well as an ornament, an image created by a method that gives them a special relief. The fur is decorated with pieces of fabric, leather, fur, lace and other finishing materials.



Fig. 7. Models from catalogs for textured combinations.

Interspersed. The technique of interspersing fur of one species and color in another, for example, silver fox fur in fox fur, can also serve as a distinctive decoration for a fur product; mink fur of white, silver - blue or other color in mink fur of black color, etc. Method Checkerboard (Checkered) - one of the types of interspersed fur. The interaction of color and contrast conveys a sense of playfulness without sacrificing the fur's own beauty (Fig. 8).



Fig. 8. Checkerboard Method (Checkered)

Embroidery is one of the unique ways to create new fur fabric. The reception was developed by the designers of Avanti (Avanti). For this method, a textile mesh is used, through which strips of fur 4-5 mm wide are pulled. Decorating with ornaments. Jewelry - natural stones, precious metal, rhinestones, etc. took a special place in the fashion industry. At the same time, creating the most luxurious HauteCouture models, world designers often give preference to Swarovski rhinestones. Fur and decorations, complementing each other, create a unique alliance of beauty, harmony and elegance.



Fig. 9. Models of fur products with decorated ornaments. Fashion Magazine Collection 2020 in Moscow Yavmode.ru.

Thus, the analysis of trending models of fur products from world catwalks has shown the widespread use of innovative design methods in the manufacture of semi-finished products and products. Replacing traditional methods for designing fur products with an innovative integrated approach provides the opportunity to give design objects a different material and visual lightness without compromising the functionality, efficiency and feasibility of their production. This implies a reduction in the mass of the product, a 2-fold reduction in the number of semi-finished fur products, simplification of manufacturing methods with a parallel reduction in the cost of products, unification of design methods and increasing the aesthetic significance of the finished product.

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