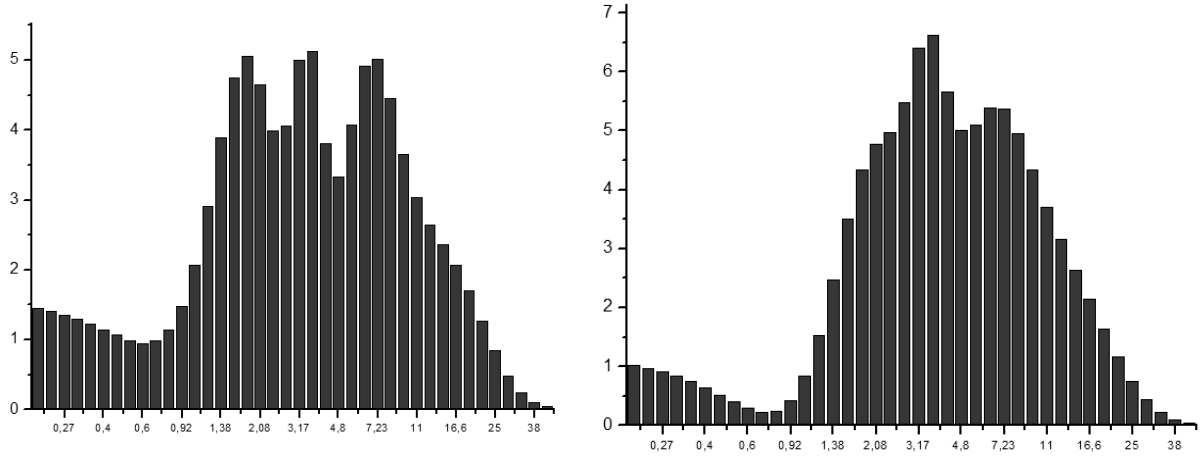
расчёты по методике [2]. Средний размер частиц полученных образцов варьируется от 3,3 до 4,2 мкм.



а) б)

Рисунок 3 – Результаты седиментационного анализа:
а - SiC-16; б – SiC-18

Таким образом можно отметить, что комбинирование экзо- и эндотермических реакций с целью снижения температуры синтеза карбида кремния является эффективным.

На основе проведенных исследований оформлена заявка на изобретение «Способ получения карбида кремния».

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DIRECTORY OF ELECTRICAL ENGINEERING EQUIPMENT PARAMETERS BASED ON CIM-OBJECTS

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Currently, a large number of different software solutions are used to organize the management process of EPS. In most cases, there is no information interaction between them, or modules are used to convert data from one format to another. With this transformation, there may be distortion or loss of information, which makes it difficult to integrate the software. To solve this problem, a method for standardizing

the architecture of systems, inter-level and intra-system interfaces, data structures, etc. was developed. In other words, theoretically, it became possible to build systems following the descriptions of a designer with a known set of components. In particular, the most important and often mentioned standard for describing the general information model of an object, that provides effective information interaction between levels and applications within the level - CIM (Common Information Model) presented in IEC standards of series 61970 and 61968 [1] - [2].

CIM or a generalized information model is an abstract model that presents all the set of elements of the electric power system in a standard way in the form of a description of the objects, their properties and the relationships between them. Such unified description allows integration of various applications performed by independent manufacturers [3].

Large manufacturers (mainly Western) produce libraries of CIM-objects of their products. However, more and more often CIM-objects are represented as "black boxes", which can be used to calculate modes, but you can’t look at the mathematical model of the equipment. At the same time, there is no general specialized electronic resource where it is possible to compare the parameters for all similar products to date. A single directory for electrical equipment parameters based on CIM objects would help solve a number of problems:

1. Inadequacy of information from several sources. Multiple duplication of information leads to errors in duplicate sources. For example, when reprinting directories, especially on hard media, there are almost always differences from the original information, caused by the introduction of errors of various kinds.
2. Inaccessibility of information. The experience of searching for the parameters of electrical equipment shows that it is almost impossible to find the necessary data in open sources. Thus it is necessary to use the data from old directories which also could be missing a part of the necessary information.
3. Diversity of information representation. In the various reference books, the same parameters are represented in different forms. For example, for a transverse capacitance of power lines and cables, the following is used: phase-to-ground capacitance and phase-to-phase capacitance, or capacitive conductance or reactive power. The heterogeneity of the presentation of information requires certain knowledge on their redefinition, which is also a source of error.
4. Correcting erroneous data. The software that is supplied to utility companies usually includes pre-installed electrical equipment directories in which the parameters of the same elements can have different values. In this case, correcting erroneous data in one directory does not lead to correction of the error as a whole. Thus, the general unreliability of the initial information accumulates.

In the course of this work, we develop a CIM-model directory that allows us to present data by our CIM descriptions taking into account the specific properties of the description of power equipment in the form of database tables.

As a result of the work done, the concept of creating a single information resource of reference information of electrical equipment based on CIM-models (Figure 1) was formulated to solve the following problems:

1. Storing the reference information.
2. Correcting erroneous data, constant monitoring.
3. Standardization of data representation (use of certain terms and mathematical models).
4. Providing the latest version of the unified information to Users.
5. Receiving data from information producers and placing it in the library. Collection of information from open sources.

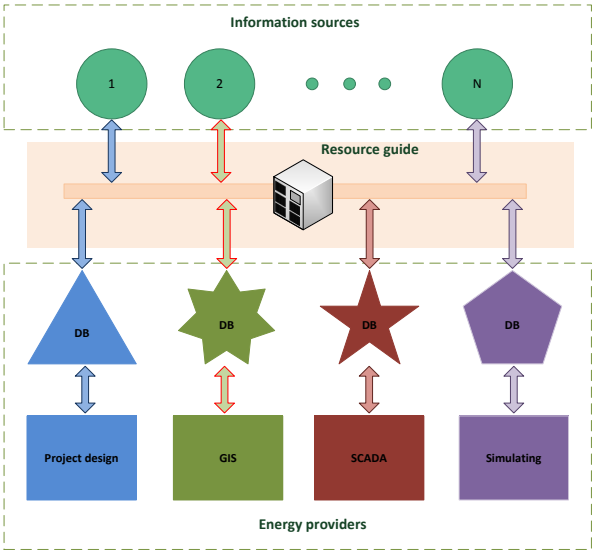

Fig. 1. Functional diagram of data input of electrical equipment parameters through common reference of CIM-objects

The specificity of the data representation is that the CIM object is a class hierarchy with a specific set of attributes in each class [4]. Figure 2 shows a brief UML description of the CIM-model of the transformer, as seen in the figure, we see a large number of attributes that describe the model.

The task of a single information resource will be to store all the reference information and provide it in a form convenient for the user (in the form of database tables (databases) and CIM object libraries). The task is also in the standardization of data representation (using unified terms and mathematical models).

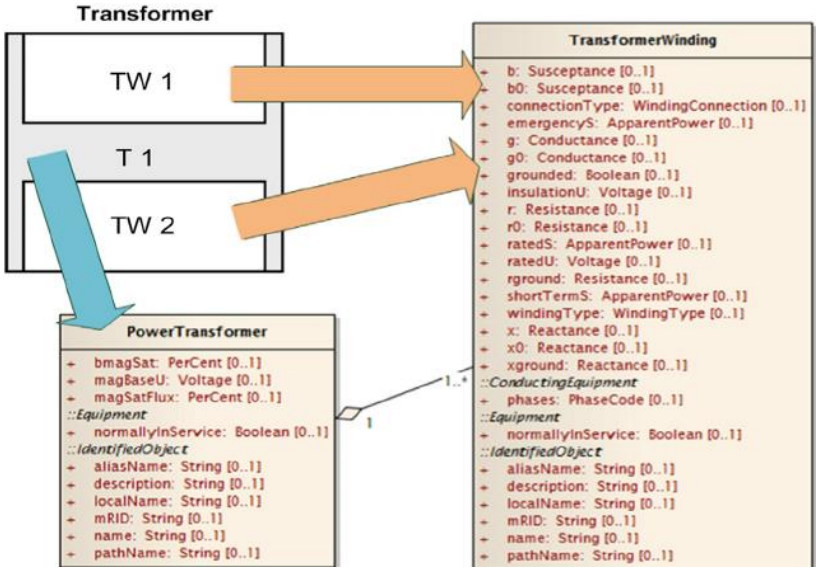

Fig. 2. UML description of the CIM-model of the transformer.

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ПРОЕКТИРОВАНИЕ И РАСЧЁТ СОВРЕМЕННЫХ СИСТЕМ ЭЛЕКТРОСНАБЖЕНИЯ

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Энергоснабжение – важнейший аспект функционирования всех промышленных предприятий. В связи с этим, особо важно спроектировать систему электроснабжения для промышленного предприятия, которая будет являться надежной, и включать в себя рационально подобранное оборудование. Объек-