



## Identification of mechanisms of interaction of materials in Van der Waals heterostructures used as structural components of transparent and flexible electronics

### Key research objectives:

- Determine energetically stable heterostructures consisting of thin films of various materials;
- Perform calculations of optical, in particular absorption, and mechanical properties of various Van der Waals heterostructures based on selected nanoscale dielectrics, semiconductors, and conductors;
- Investigate the mechanisms of interaction of materials in Van der Waals heterostructures.

### Relevance of the research:

Obtaining materials with specified optical and mechanical properties by selecting various configurations of Van der Waals heterostructures for use as structural components of transparent and flexible electronics with improved performance characteristics.

The selection of the material in the heterostructure makes it possible to change the band gap and the permittivity to effectively control the movement of charge carriers, their recombination, and light fluxes. Van der Waals heterostructures emit light over the entire surface, can be made on a flexible substrate and remain an optically transparent material, which is of great interest in innovative areas of electronics (transparent and flexible electronics).

### Type of collaboration

research cooperation

### Key words

van der waals,  
heterostructures,  
electronics

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