

Organic crystals pave way for 'flexible' electronic devices

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Researchers learnt to grow organic semiconductor crystals with extremely high light-emitting efficiency.

Washington

: A team of researchers has developed organic crystals that allow creating flexible electronic devices.

The Faculty of Physics of the Moscow State University scientists' research can help reduce the cost of the process of creating light, flexible and transparent light-emitting electronic devices of the new generation.

The team learnt to grow organic semiconductor crystals with extremely high light-emitting efficiency that promise a bright future for wet-processed organic optoelectronics.

Moreover, they made a double breakthrough using much simpler and cheaper technologies that previously were considered impractical.

Researcher Dmitry Paraschuk said, "We have shown that it is possible to grow crystals on the surface of the liquid in different ways. Roughly speaking, after we place a solution with molecules in a vessel and then begin to cool it, under some certain conditions we allow molecules to be deposited on the surface at the "air-liquid" interface. Because the liquid surface is almost perfect, the crystals grown on it are of good quality, and owing to their high electronic performance they are much more preferable to the vapor-grown ones. Moreover, the surface of the solution-grown crystals is molecularly smooth with angstrom-scale roughness, which allows us to create field-effect transistors on their basis, and its quality is irreplaceable in this case."

The results appear in the Applied Materials and Interfaces journal.

Location: [United States](#), [Washington](#)