

Spontaneous coherence and spin current in a cold exciton gas

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An indirect exciton is a bound pair of an electron and a hole confined in spatially separated layers. Due to their long lifetimes, indirect excitons can cool down below the temperature of quantum degeneracy. This gives an opportunity to study cold exciton gases. We will present spontaneous coherence and condensation, spatial ordering, and spin current in a cold exciton gas [1,2].

Indirect excitons are dipoles and their energy can be controlled by voltage. This gives an opportunity to create a variety of potential landscapes for indirect excitons and use them as a tool for studying the physics of excitons. We will present spontaneous coherence and condensation of excitons in a trap [3].

References

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