ELECTRONIC AND OPTOELECTRONIC TRANSPORT IN 2D LAYERED MATERIALS

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Two dimensional semiconducting layered nanostructured materials such as MoS$_2$, WSe$_2$, InSe, CuInSe etc. can possibly lead to devices with multifunctional electronic and optoelectronic applications. For example, monolayer MoS$_2$ based phototransistors show ultrahigh photoresponsivity$^1$. Similarly, group III-VI based layered semiconductors e.g. multilayer InSe based systems are also capable of reaching extremely high photo-responsivity$^2$. In this talk, electronic and optoelectronic transport properties of several of these layered semiconductors will be discussed. The temperature dependent photo transport measurements will be presented and will be discussed in the light of various theoretical models. These information can potentially lead to the development of a variety of electronic and optoelectronic applications using 2D layered materials.

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**References:**


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