

**An easy route to synthesis black phosphorus at low pressure and soft conditions**

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Abstract:

Black phosphorus a promising candidate for large application, due to his variety of structural and physical properties, can be prepared by a very low-coast reaction route with high purity and crystallinity. Black phosphorus is prepared from red phosphorus at 873K under reduced pressure using a simple and low cost catalytic system. The quality of crystal with lattice parameters $a=3.31\text{\AA}$, $b=10.48\text{\AA}$, $c=4.37\text{\AA}$ can be approved by a series of characterizations like scanning microscopy electron (SEM), energy dispersive spectrometry (EDX), Raman spectroscopy and powder X-rays. The new preparation method of black phosphorus represents an easy, effective and low cost approach to avoid complicated preparative setups, toxic catalysts, or “dirty” flux methods and is of general interest in elemental chemistry.

Contribution:

Oral