







TABLE III FIELD DEPENDENCE OF ACTIVATION ENERGY

| Voltage (V)            | Activation energy (eV) |                       |
|------------------------|------------------------|-----------------------|
|                        | PbTe                   | Sb & Se co-doped PbTe |
| 2                      | 0.0658                 | 0.1168                |
| 4                      | 0.0564                 | 0.1106                |
| 6                      | 0.0545                 | 0.1017                |
| 8                      | 0.0498                 | 0.1047                |
| 10                     | 0.0437                 | 0.0978                |
| 12                     | 0.0395                 | 0.0972                |
| 14                     | 0.0281                 | 0.0884                |
| Zero activation energy | 0.0695                 | 0.1206                |

#### IV. CONCLUSION

Nanocrystalline PbTe and Sb & Se co-doped PbTe thin film was prepared by integrated physical-chemical approach. The XRD analysis shows that the nanocrystalline undoped and doped PbTe thin film exhibits a pure NaCl-type structure. The micrograph shows that the substrate is well covered with a large number of densely packed nanocrystalline grains. The dominating conduction mechanism for Sb & Se co-doped PbTe thin films may be of the Poole - Frenkel type.

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