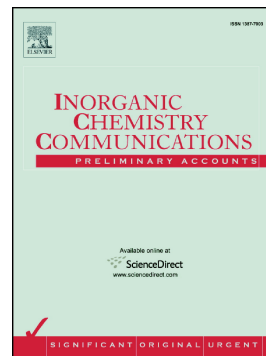


## Accepted Manuscript

Conducting polymer nanocomposite based temperature sensors: A review

R. Megha, Farida A. Ali, Y.T. Ravikiran, C.H.V.V. Ramana, A.B.V. Kiran Kumar, D.K. Mishra, S.C. Vijayakumari, D. Kim



PII: S1387-7003(18)30642-7  
DOI: doi:[10.1016/j.inoche.2018.09.040](https://doi.org/10.1016/j.inoche.2018.09.040)  
Reference: INOCHE 7131  
To appear in: *Inorganic Chemistry Communications*  
Received date: 28 June 2018  
Revised date: 21 September 2018  
Accepted date: 24 September 2018

Please cite this article as: R. Megha, Farida A. Ali, Y.T. Ravikiran, C.H.V.V. Ramana, A.B.V. Kiran Kumar, D.K. Mishra, S.C. Vijayakumari, D. Kim , Conducting polymer nanocomposite based temperature sensors: A review. *Inoche* (2018), doi:[10.1016/j.inoche.2018.09.040](https://doi.org/10.1016/j.inoche.2018.09.040)

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### ABSTRACT

*The absolute necessary for measuring temperature with large accuracy and with a wide range in various industrial sectors increases the need for researcher to choose a suitable material, which is useful especially in bio-medical applications, food packaging and air conditioning system. A slight deviation of temperature creates a lot of problems which cannot be controlled rapidly. Hence, the temperature sensor needs to have the properties of high sensitivity, fast response, low cost, high volume production, and high reliability. Considering the essentialities of the temperature measurement almost in all types of industrial sectors, the sensing materials used for fabricating the sensors should have flexibility for both temperature and pressure sensing ability. In this aspect, conducting polymers have an efficient candidate for temperature sensor. As the conducting polymers are fabricated by the incorporation of conducting filler in polymers, the resistivity of such materials is very sensitive to temperature for which response to the signal very fastly. The high accuracy measurement as well as wide measurement scale can only be achieved by conducting polymer based sensors which are more stable at high temperature. However, the sensitivity and selectivity of nanostructure conducting polymer-based sensors still needs a lot of enhancement. In the present review, fabrication of conducting polymers and their importance as temperature sensors have been discussed.*

**Keywords:** Conducting polymers; Temperature sensors; Resistivity; Fabrication;

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