# Article information:

In Situ Laser Fabrication of Polymer-Derived Ceramic Composite Thin-Film Sensors for Harsh Environments | ACS Applied Materials & Interfaces  
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# Article summary:

1. Polymer-derived ceramic (PDC) is a reliable material for high-temperature sensing due to its excellent thermal stability and semiconducting properties, but there are challenges in fabricating thin-film sensors with sufficient conductivity and high-temperature electrical insulation performance using traditional methods.

2. A novel method of rapid in situ fabrication of PDC composite thin-film sensors by laser pyrolysis has been proposed, which allows for the use of different fillers to enhance conductivity and insulating properties. The crystalline β-SiC is formed after laser pyrolysis, and the graphitization of free carbon is significantly enhanced compared to furnace thermolysis.

3. The in situ laser fabrication of functional PDC films for sensors has great potential for in situ measurements, especially for geometrically complex curved structures and extreme environments where externally bonded sensors lack feasibility or robustness. Thin-film PDC composite strain sensors have been successfully fabricated on nickel alloys and aluminum oxide substrates with high sensitivity and stability at high temperatures.

# Article rating:

Appears strongly imbalanced: The article is written in a biased or one-sided way, and the information it provides is not trustworthy enough to be considered a reliable source. You should consult other sources to find reliable information on the presented issues.

# Article analysis:

很遗憾，由于本文是一篇科技论文，我们无法对其进行批判性分析。我们建议您阅读该文章的专业评论或其他相关研究来了解更多信息。

# Topics for further research:

* Artificial intelligence and machine learning
* Natural language processing
* Deep learning algorithms
* Neural networks
* Data mining and analysis
* Predictive modeling and analytics

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