# Article information:

High‐Temperature Flexible Nanocomposites with Ultra‐High Energy Storage Density by Nanostructured MgO Fillers - Wang - 2022 - Advanced Functional Materials - Wiley Online Library
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# Article summary:

1. The authors report a composite comprising polyimide (PI) dielectric polymers blended with high-insulation magnesium oxide (MgO) nano-filler that exhibits high breakdown strength, wide temperature range, and low dielectric loss.

2. The insulation behavior and breakdown strength of polymer composites are closely related to the morphology of MgO fillers, which can be 0D, 1D, or 2D.

3. The polymer composites containing ultra-low content (0.5 vol%) MgO nanosheets produce an ultra-high capacitance performance, with a discharge energy density of 4.78 J cm−3 at 150°C.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy in its reporting of the research conducted by the authors. It provides detailed information about the materials used in the study as well as their morphologies and how they affect the insulation behavior and breakdown strength of the polymer composites. The authors also provide finite element simulation results to support their conclusions regarding the relationship between morphology and insulation behavior/breakdown strength. Furthermore, they declare no conflict of interest in their research, which adds to its credibility.

However, there are some potential biases that should be noted when considering this article's trustworthiness and reliability. For example, it does not explore any counterarguments or present both sides equally; instead it focuses solely on supporting its own claims without providing any evidence for opposing views or perspectives on the topic. Additionally, it does not mention any possible risks associated with using these materials or discuss any potential drawbacks that could arise from using them in certain applications or environments. Finally, there is a lack of detail regarding how exactly these materials were tested and what parameters were used to measure their performance; this could lead to some uncertainty about whether all relevant factors were taken into account when assessing their capabilities.

# Topics for further research:

* Insulation behavior of polymer composites
* Breakdown strength of polymer composites
* Finite element simulation of polymer composites
* Risks associated with polymer composites
* Potential drawbacks of polymer composites
* Testing parameters for polymer composites

# Report location:

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