# Article information:

Switching of perpendicular magnetization by spin–orbit torques in the absence of external magnetic fields | Nature Nanotechnology
<https://www.nature.com/articles/nnano.2014.94>

# Article summary:

1. This article discusses the switching of perpendicular magnetization by spin–orbit torques in the absence of external magnetic fields.

2. The authors introduce a lateral structural asymmetry into their devices, which gives rise to a new field-like spin–orbit torque when in-plane current flows in these structures.

3. This field-like spin–orbit torque facilitates the switching of perpendicular magnets without the need for any external magnetic fields.

# 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, as it is published in Nature Nanotechnology, a reputable journal with high standards for research quality and accuracy. The authors provide detailed descriptions of their experiments and results, as well as references to other relevant studies that support their claims. Furthermore, they discuss potential applications of their findings and acknowledge possible risks associated with them.

However, there are some points that could be improved upon. For example, the authors do not explore counterarguments or present both sides equally; instead, they focus solely on the potential benefits of their findings without considering any potential drawbacks or limitations. Additionally, while they cite several relevant studies to support their claims, they do not provide evidence for all of them; some are simply mentioned without further explanation or elaboration. Finally, there is a lack of discussion about ethical considerations related to this research; while the authors acknowledge possible risks associated with their findings, they do not discuss any ethical implications or considerations that should be taken into account when using this technology.

# Topics for further research:

* Ethical implications of nanotechnology
* Potential risks of nanotechnology
* Counterarguments to nanotechnology
* Limitations of nanotechnology
* Evidence-based research on nanotechnology
* Social and environmental impacts of nanotechnology

# Report location:

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