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# An atomically thin ferromagnet—just one atom thick

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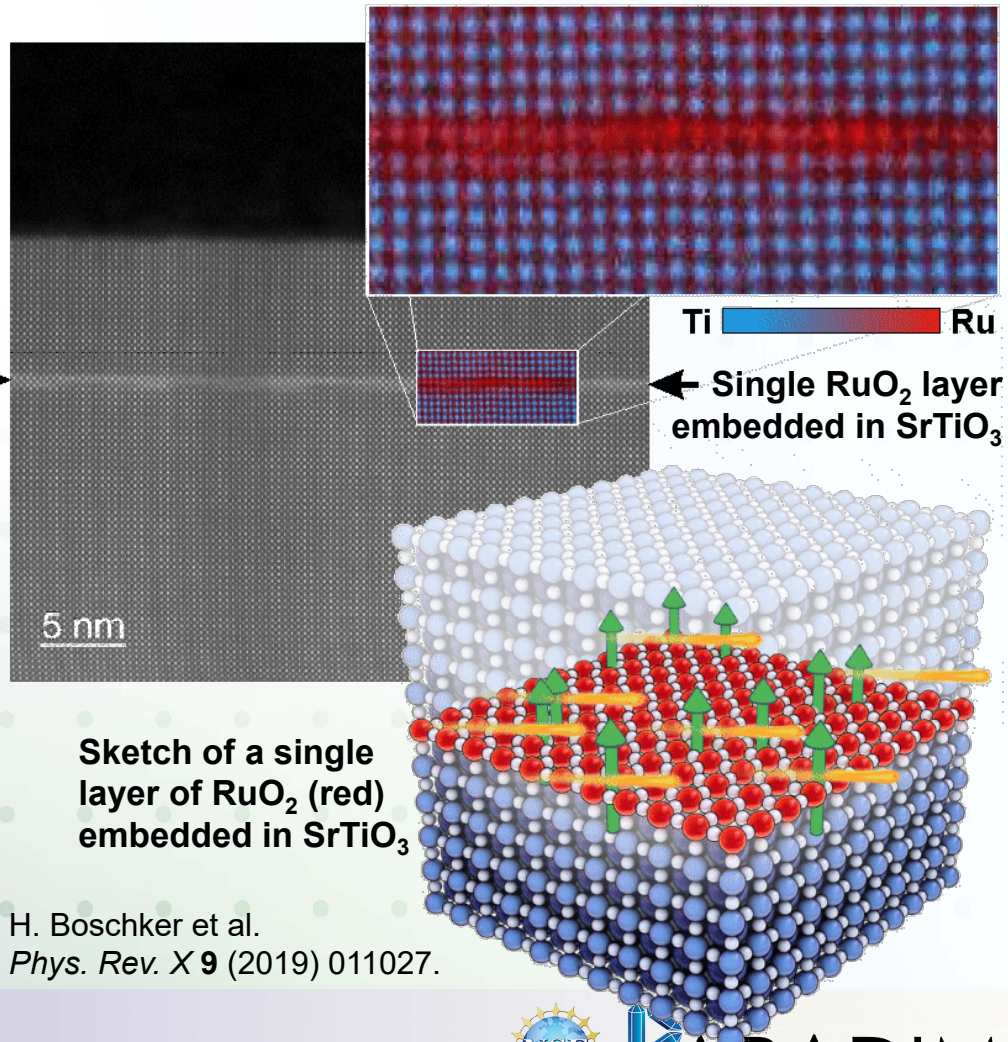
How thin can a ferromagnet be?

Typical magnets are bulk materials containing stacks of layers. Theorists have suggested that shrinking the thickness to a single monolayer might destroy this behavior, but recent experiments show that ferromagnetism survives in monolayer-thin flakes of $CrI_3$ and $Cr_2Ge_2Te_6$. Small-scale ferromagnetism can be vital to low-power electronic circuitry known as spintronics. To be able to make such circuitry smaller, it is important to understand the fundamental limits to ferromagnetism and to develop methods that can coat large-area integrated circuits.

PARADIM scientists collaborating with groups from around the world show that ferromagnetism can exist in a single monolayer of $RuO_2$ captured in the right packing between insulating surrounding layers.

The advantage of this new monolayer-thin ferromagnet over flakes of $CrI_3$ or $Cr_2Ge_2Te_6$ is that the oxide film can be deposited over large areas evenly, making it relevant to technology.

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