

## Cloaking Static Magnetic Fields

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Metamaterials open new possibilities for electromagnetism: they give access to values of  $\epsilon$  and  $\mu$  that cannot be obtained in any other way. Most celebrated is the achievement of negative refraction through  $\epsilon < 0, \mu < 0$  metamaterials. They can also be used to construct cloaks that screen a given region of space from fields [1-3], but leave the fields outside the cloak unperturbed. Such a cloak necessarily requires anisotropic values of  $\epsilon$  and  $\mu$  that can be challenging to realize even with metamaterials. We describe a cloak for DC magnetic fields exploiting the ability of superconductors to sustain permanent currents [4] and conclude with a brief discussion of why we believe that a DC electric cloak is impossible if we confine ourselves to passive components.

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