WHICH MAGNETIC FIELDS SUPPORT A ZERO MODE?

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Motivated by the question from mathematical physics about the size of magnetic fields that support zero modes for the three dimensional Dirac equation, we study a certain conformally invariant spinor equation. We state some conjectures and present results in their support. Those concern, in particular, two novel Sobolev inequalities for spinors and vector fields. The talk is based on joint work with Michael Loss.

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