Groundstate fidelity and the spin one chain IAN MCCULLOCH, University of Queensland — it has been recognized quite recently that the groundstate fidelity, that is, the overlap of the groundstate wavefunctions as a function of interaction strength, can be used to obtain phase boundaries and exponents *without* a-priori knowledge of the order parameter. This procedure is easy to apply in a wide class of numerical algorithms based on matrix product states, of which the Density Matrix Renormalization Group (DMRG) is the most famous. I will give a brief overview of the technique, and demonstrate that the fidelity reveals *all* features of the bilinear-biquadratic spin one chain, while almost certainly ruling out the appearance of a (gapped or critical) nematic phase in the vicinity of $\theta = -3\pi/4$.

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