

Abstract Submitted
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Soliton Creation with a Twist¹ TANMAY VACHASPATI, Arizona State University — We consider soliton creation when there are “twist” degrees of freedom present in the model in addition to those that make up the soliton. Specifically we consider a deformed $O(3)$ sigma model in 1+1 dimensions, which reduces to the sine-Gordon model in the zero twist sector. We study the scattering of two or more breather solutions as a function of twist, and find soliton creation for a range of parameters. We speculate on the application of these ideas, in particular on the possible role of magnetic helicity, to the production of magnetic monopoles, and the violation of baryon number in nuclear scattering experiments.

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