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A Model for Strain Glass TURAB LOOKMAN, Los Alamos National Laboratory, ROMAIN VASSEUR, École Normale Supérieure de Lyon, 46 Allée d'Italie — We demonstrate that a strain discrete "pseudo-spin" model for martensitic alloys predicts a glass phase in the presence of disorder, consistent with recent experiments on binary and ternary alloys that have established the existence of such a phase above a critical composition. We find that the glass phase, as characterized by the Edwards-Andersen order parameter, exists even in the absence of elastic long-range interactions which compete with the disorder to shift the glass transition to higher values of the disorder. This approach, using mean-field analysis and Monte Carlo simulations, may be generalized to the study of glassy behavior in more complex structural transformations in two and three dimensions.

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