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Integrability in anyonic quantum spin chains via a composite height model PAATA KAKASHVILI, Rutgers University, EDDY ARDONNE, NORDITA — Recently, properties of collective states of interacting non-abelian anyons have attracted a considerable attention. We study an extension of the 'golden chain model', a model of interacting Fibonacci anyons, where two- and three-body interactions are competing. Upon fine-tuning the interaction, the model is integrable. This provides an additional integrable point of the model, on top of the integrable point, when the three-body interaction is absent. To solve the model, we construct a new, integrable height model, in the spirit of the restricted solid-on-solid model solved by Andrews, Baxter and Forrester. The model is solved by means of the corner transfer matrix method. We find a connection between local height probabilities and characters of a conformal field theory governing the critical properties at the integrable point. In the anitferromagnetic regime, the criticality is described by the Z_k parafermion conformal field theory, while the $su(2)_1 \times su(2)_1 \times su(2)_{k-2}/su(2)_k$ coset conformal field theory describes the ferromagnetic regime.

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