

## Electronic Supplementary Information

### Dynamics in a one-dimensional ferrogel model: relaxation, pairing, shock-wave propagation

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#### Supplementary movies

Movies I–IV present the particle-resolved simulation results for Scenarios I–IV. The composition of the movies is described in Fig. S1.

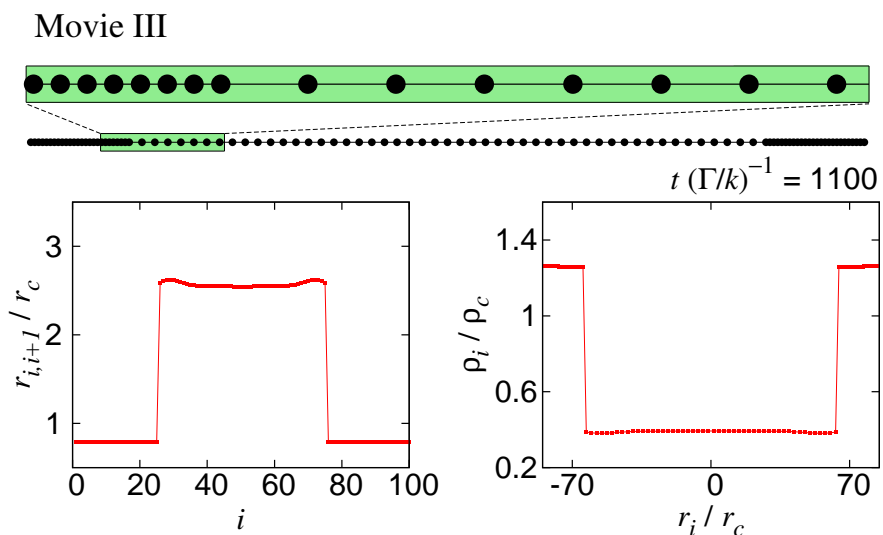


Figure S1: A snapshot taken from one of the movies. The title is displayed in the first row of each movie. In the third row, the whole magnetic chain is presented, while, in the second row, enlarged figures for the region shaded in green in the third row are plotted. Graphs on the left-hand side at the bottom show the spring length distributions, while the density profiles are displayed on the right-hand side. Elapsed times from the initial time of uniform configuration are indicated. The parameter values are the same as the ones used in Figs. 3–6 of the main paper.

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