

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Assembly of the aligned chain using LEGO bricks and plastic shims.

File Name: Supplementary Movie 2

Description: Excitation of elastic vector solitons in our system using a pendulum and an impactor.

File Name: Supplementary Movie 3

Description: Propagation of elastic vector solitons in the aligned chain.

File Name: Supplementary Movie 4

Description: Assembly of the shifted chain using LEGO bricks and plastic shims.

File Name: Supplementary Data 1

Description: Instruction to run the MATLAB code.

File Name: Supplementary Data 2

Description: Main MATLAB file to be run to simulate the dynamic response of an aligned chain.

File Name: Supplementary Data 3

Description: MATLAB function that provides the boundary conditions.

File Name: Supplementary Data 4

Description: MATLAB function that provides the ODEs to be solved.