**Supplementary Information**

# Tunable self-healing of magnetically propelling colloidal carpets

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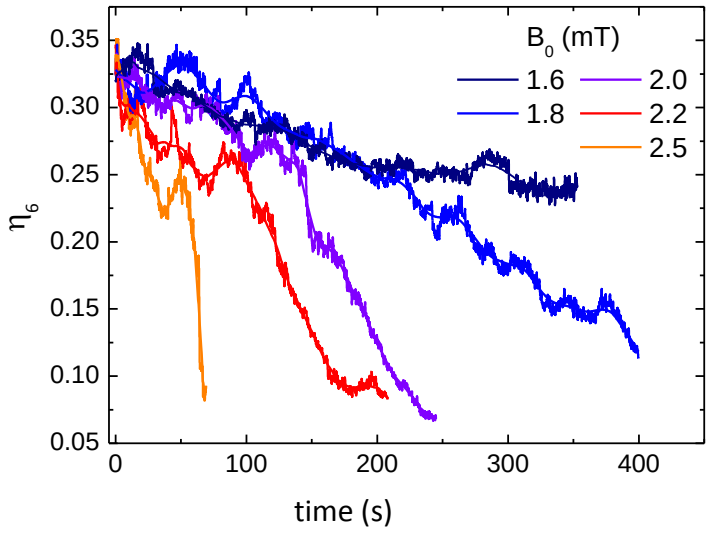
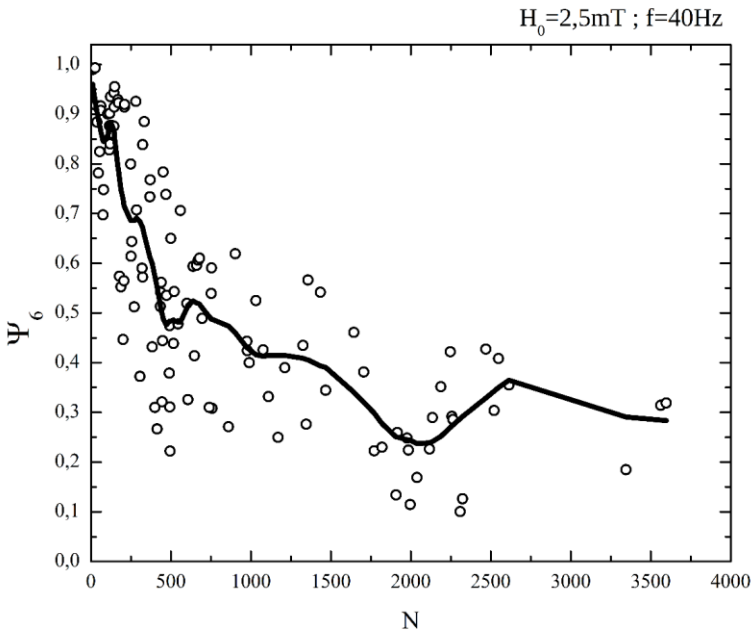
**Supplementary Figures**

**Supplementary Figure 1**



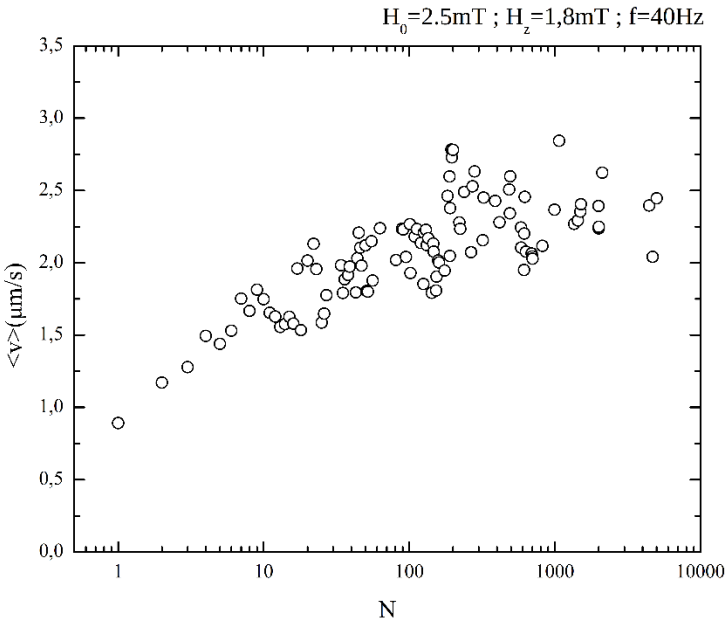

**Caption Supplementary Figure 1.** Exponent $\eta_6$ of the correlation function $g_6(r)$ versus time for different values of the magnetic field $B_0$, and hence carpet speed $v_c$.

**Supplementary Figure 2**



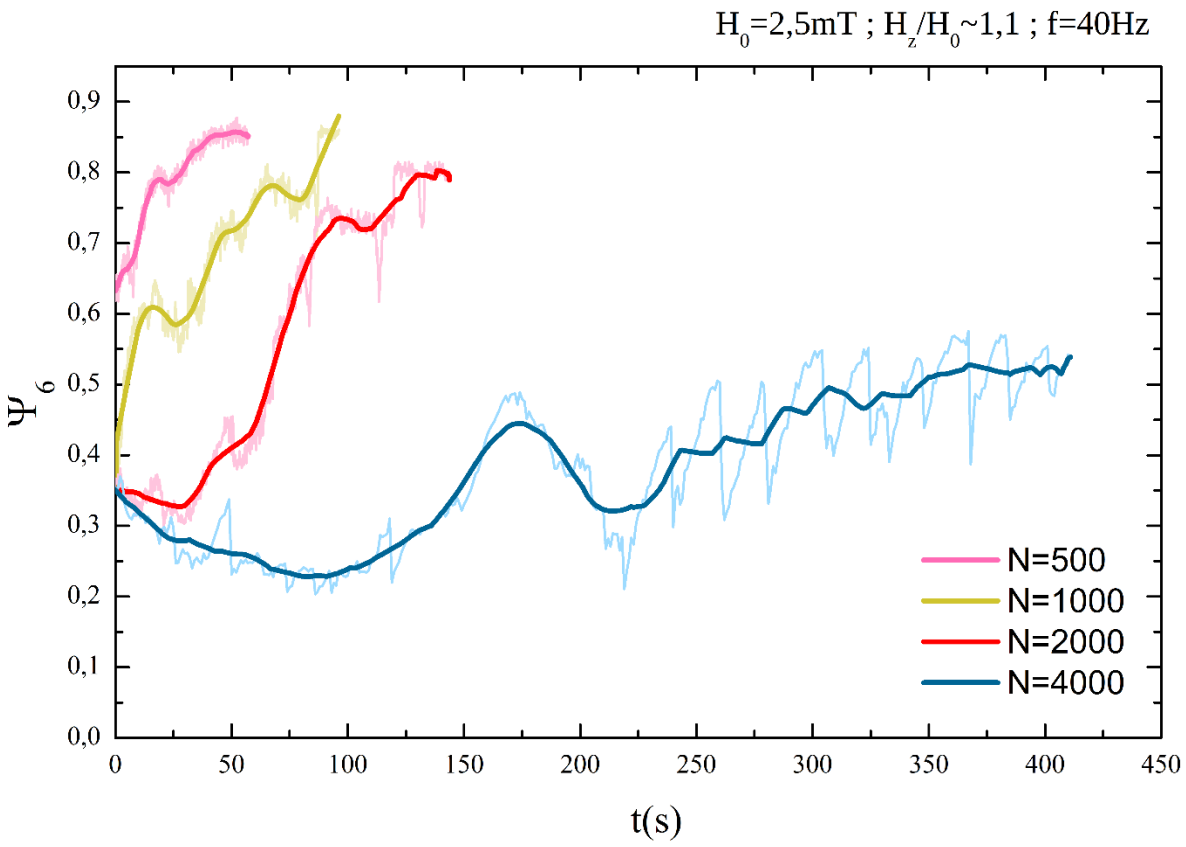

**Caption Supplementary Figure 2.** Bond orientational order parameter $\Psi_6$ versus the number of particles within the carpet in the assembly stage. The continuous black line is an average of the experimental data, which are the scattered open circles. The applied rotating field has amplitude $B_0$=*2.5 mT* and frequency *f = 40 Hz*.

**Supplementary Figure 3**




**Caption Supplementary Figure 3.** Average speed of the carpet versus the number of particles N for a carpet driven by a time dependent field with amplitudes $B_0$ *=2.5 mT,* $B_z$ *=1.8 mT* and frequency *f = 40 Hz*.

**Supplementary Figure 4**




**Caption Supplementary Figure 4.** Bond orientational order parameter versus time for four different carpet sizes.