Triggered by Light and Magnetism: Smart Foam PLLA/HAP/Fe_3O_4 Scaffolds for Heat-Controlled Biomedical Applications

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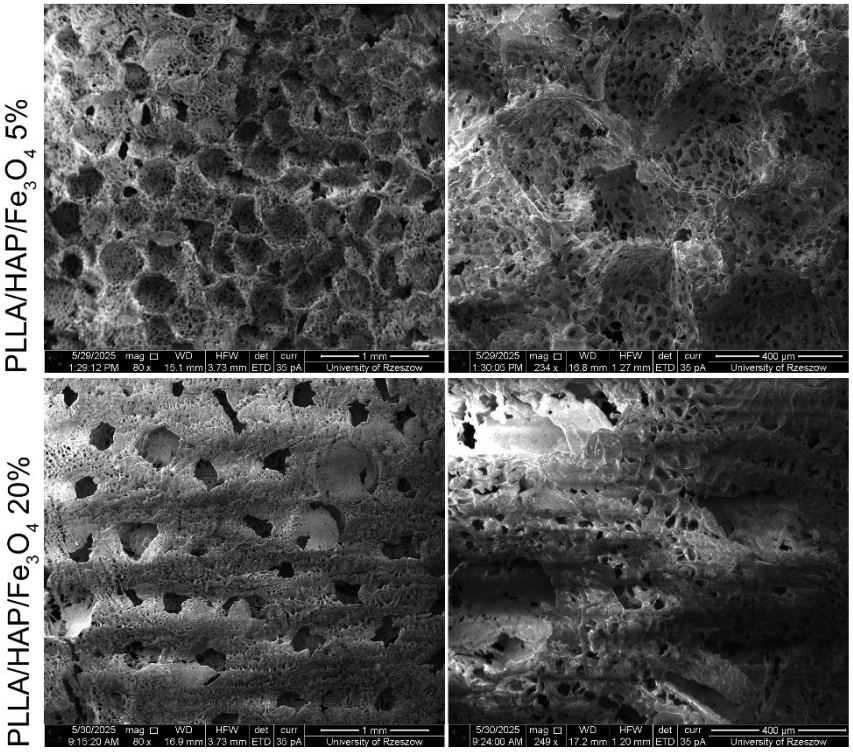

Figure S1. SEM images of the PLLA/HAP/Fe_3O_4 5% and PLLA/HAP/Fe_3O_4 20%.

Above SEM images were taken after 24 months of storage in a Falcon container. Both composites were also after energy conversion measurements and gentle drying from a Ringer's solution. They did not show significant alteration of microstructure.

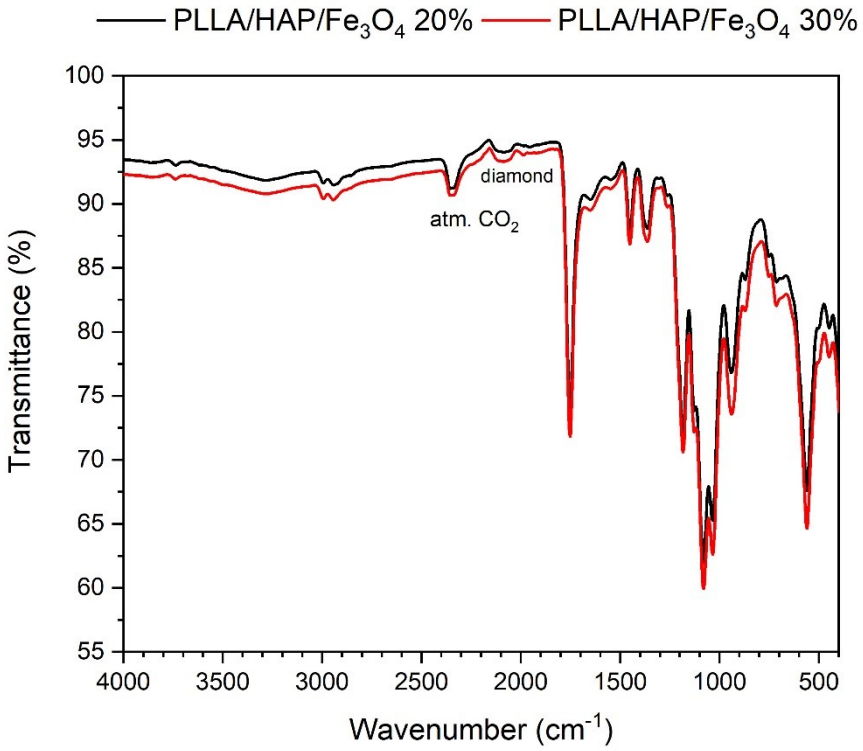

Figure S2. FTIR spectra of the PLLA/HAP/Fe_3O_4 20% and 30%.

Table S1. BET results of the PLLA/HAP/Fe_3O_4 foams

	1% Fe_3O_4	2% Fe_3O_4	4% Fe_3O_4	6% Fe_3O_4	8% Fe_3O_4	PLLA/HAP
Surface area (m^2/g)	17	24.7	15	17	25.1	28.8
C	108.7	51	127	120	48	51.4

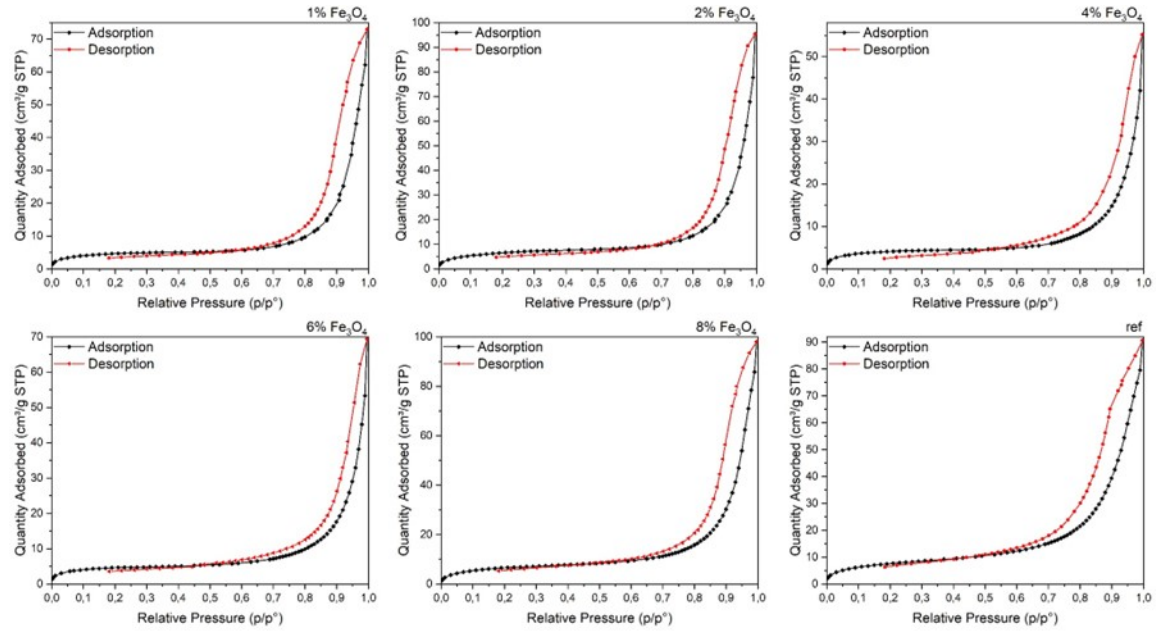

Figure S3. Nitrogen adsorption - desorption isotherms (77 K) of samples with different Fe_3O_4 content (1–8 wt%) and the reference PLLA/HAP foam. The isotherms indicate low specific surface area and predominantly macroporous characteristics.

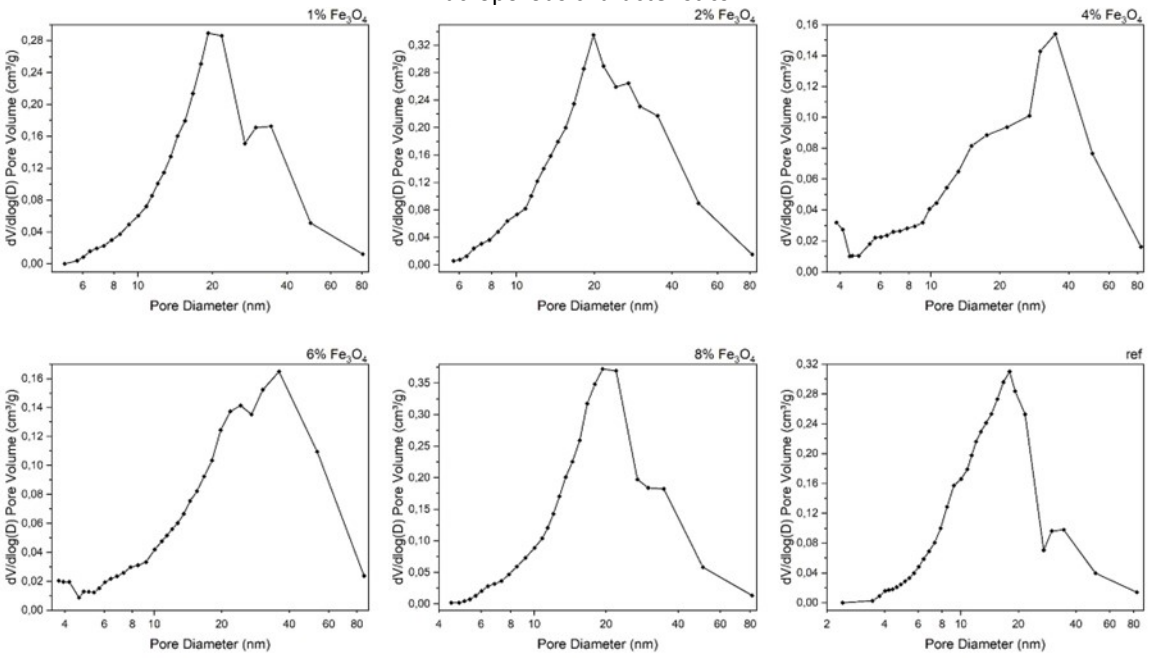

Figure S4. Barrett–Joyner–Halenda (BJH) ore size distribution curves of foams with Fe_3O_4 (1–8 wt%) and the reference sample PLLA/HAP

Table S2. Mechanical properties of the PLLA/HAP/Fe_3O_4 foams.

Sample	Compression modulus (kPa)	Compressive stress at 10% strain (kPa)	Compressive stress at 30% strain (kPa)
PLLA	46.97 ± 19.9	4.67 ± 0.2	150.70 ± 22.7
PLLA/HAP/ Fe_3O_4 1%	56.98 ± 11.0	6.85 ± 0.7	41.91 ± 1.9
PLLA/HAP/ Fe_3O_4 5%	77.71 ± 6.5	8.55 ± 0.1	75.89 ± 21.1
PLLA/HAP/ Fe_3O_4 10%	87.94 ± 13.7	9.69 ± 0.7	67.83 ± 1.5
PLLA/HAP/ Fe_3O_4 15%	93.10 ± 23.2	10.79 ± 1.8	55.92 ± 3.6
PLLA/HAP/ Fe_3O_4 20%	74.36 ± 6.5	8.33 ± 1.1	184.47 ± 40.8
PLLA/HAP/ Fe_3O_4 30%	105.65 ± 32.2	11.89 ± 2.4	110.15 ± 15.0

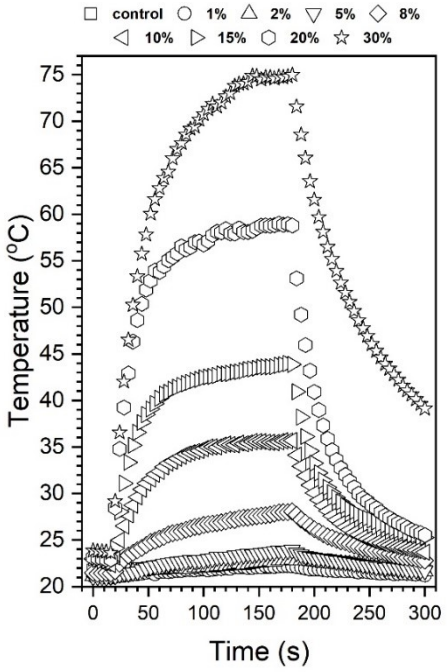

Figure S5. Heating curves of the magnetite concentration dependence of the soaked PLLA/HAP/Fe_3O_4 foams under the action of the AMF (336 kHz, 27 kA/m).

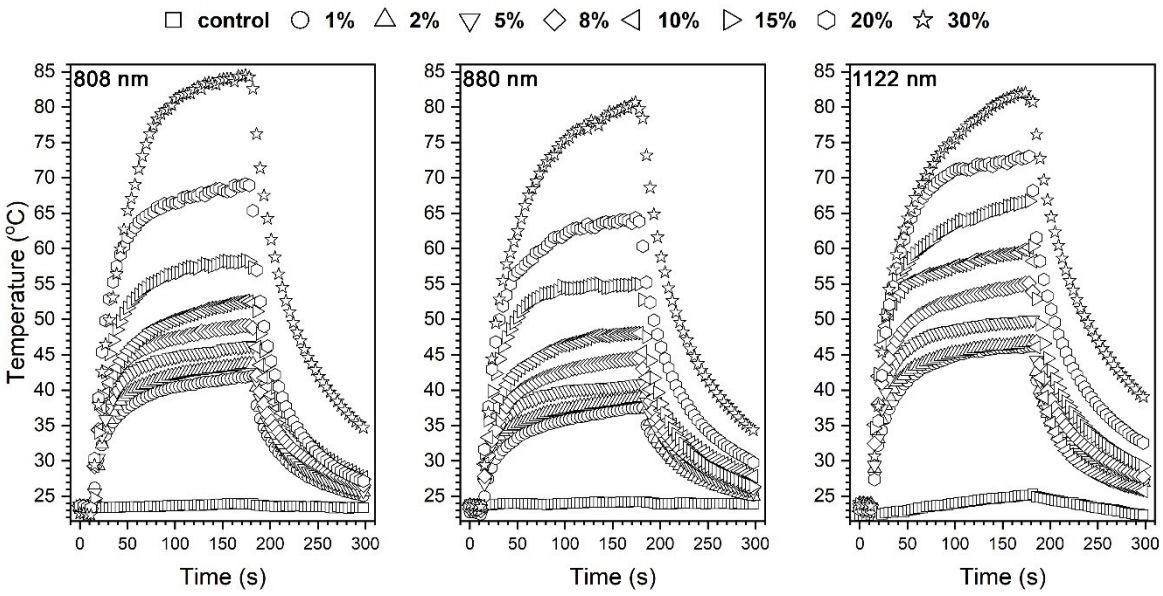

Figure S6. Heating curves of the magnetite concentration dependence under the action of both stimuli (AMF 336 kHz, 27 kA/m, 600 mW, 808, 880, and 1122 nm lasers).