PLOS ONE

CORRECTION

Correction: Modeling of core-shell magneto-electric nanoparticles for biomedical applications: Effect of composition, dimension, and magnetic field features on magnetoelectric response

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The images for Figs 1, 2, 4 and 5 are incorrectly switched. The image that appears as Fig 1 should be Fig 4, the image that appears as Fig 2 should be Fig 5, the image that appears as Fig 4 should be Fig 2 and the image that appears as Fig 5 should be Fig 1. The figure captions appear in the correct order.

Check for updates

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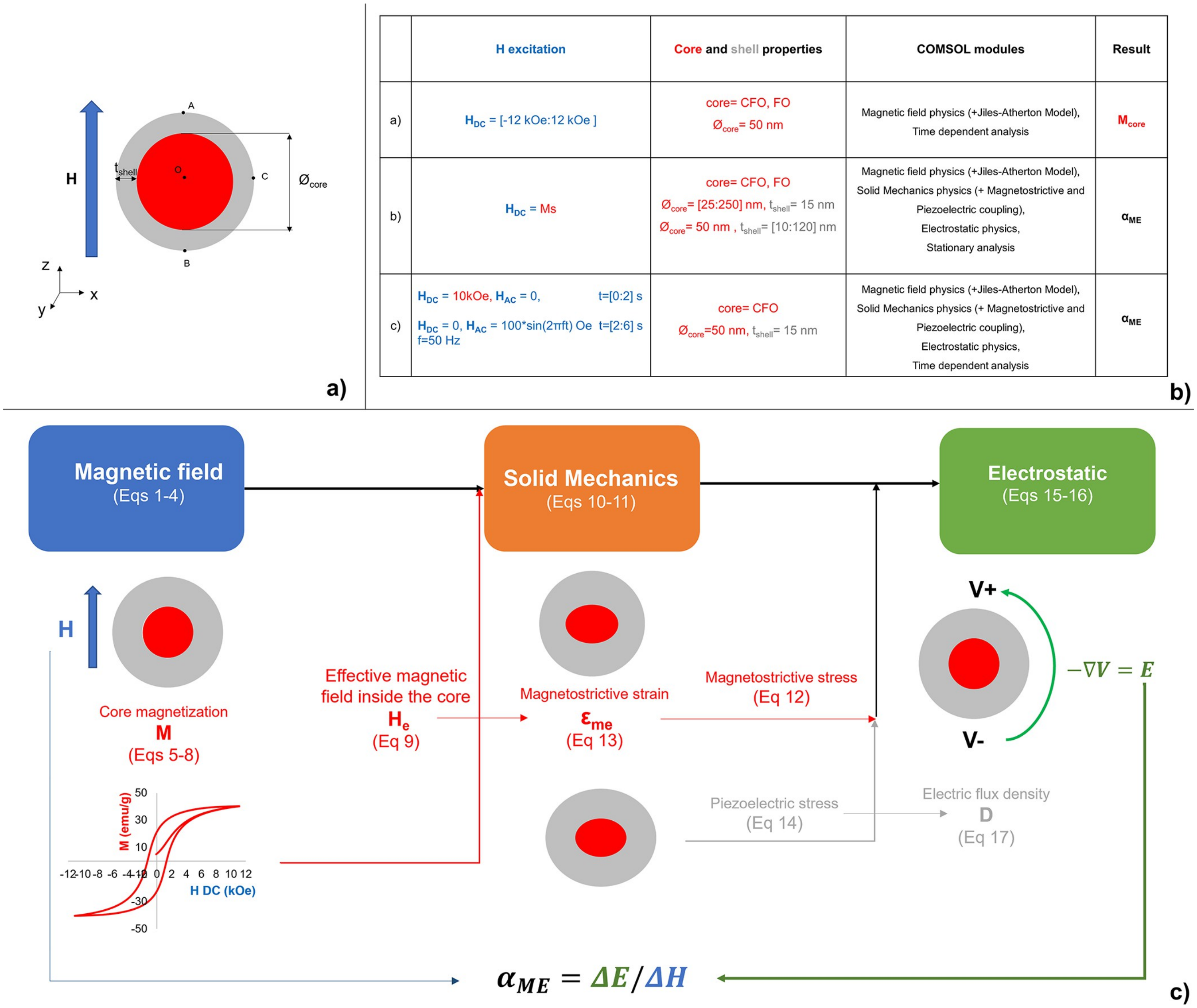

	H excitation	Core and shell properties	COMSOL modules	Result
a)	H_{DC} = [-12 kOe:12 kOe]	core= CFO, FO $Ø_{core}$= 50 nm	Magnetic field physics (+Jiles-Atherton Model), Time dependent analysis	M_{core}
b)	H_{DC} = Ms	core= CFO, FO $Ø_{core}$= [25:250] nm, t_{shell}= 15 nm $Ø_{core}$= 50 nm , t_{shell}= [10:120] nm	Magnetic field physics (+Jiles-Atherton Model), Solid Mechanics physics (+ Magnetostrictive and Piezoelectric coupling), Electrostatic physics, Stationary analysis	α_{ME}
c)	H_{DC} = 10kOe, H_{AC} = 0, t=[0:2] s H_{DC} = 0, H_{AC} = 100*sin(2πft) Oe t=[2:6] s f=50 Hz	core= CFO $Ø_{core}$=50 nm, t_{shell}= 15 nm	Magnetic field physics (+Jiles-Atherton Model), Solid Mechanics physics (+ Magnetostrictive and Piezoelectric coupling), Electrostatic physics, Time dependent analysis	α_{ME}

Fig 1. MENP computational modeling. Schematic representation of: a) the geometrical parameters of a generic core-shell MENP; b) the simulation settings in the three different analyses performed; c) the computational study workflow.

https://doi.org/10.1371/journal.pone.0314414.g001

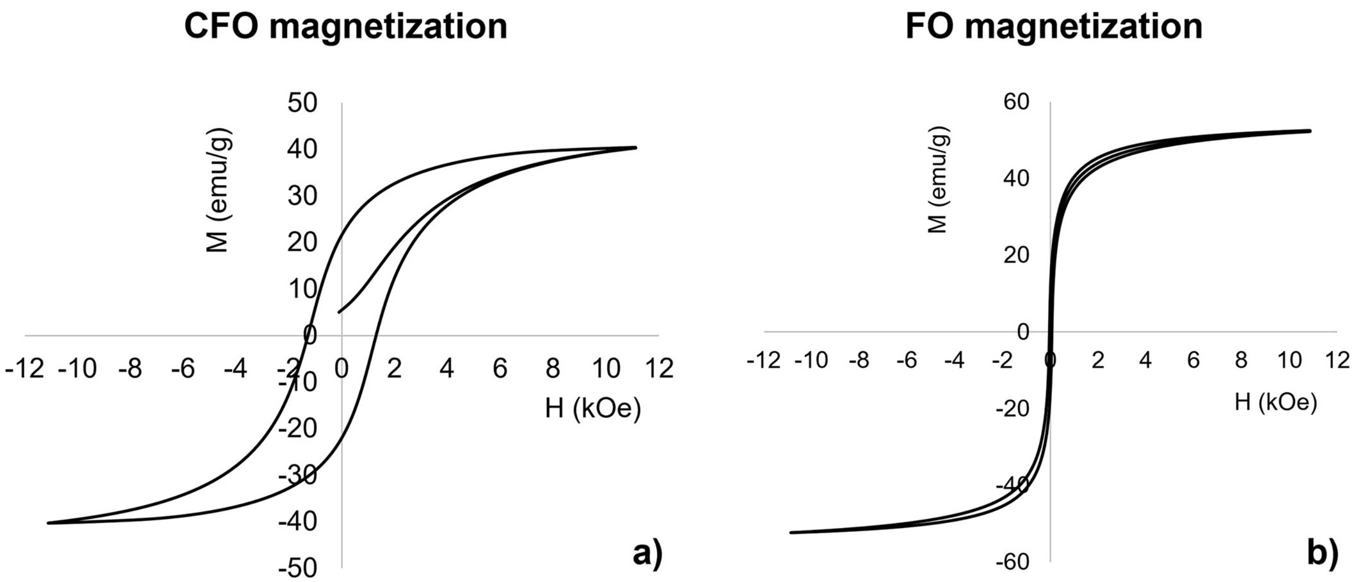

Fig 2. MENPs cores magnetization behavior. DC magnetization loops of a) CFO and b) FO core 50 nm nanoparticles.

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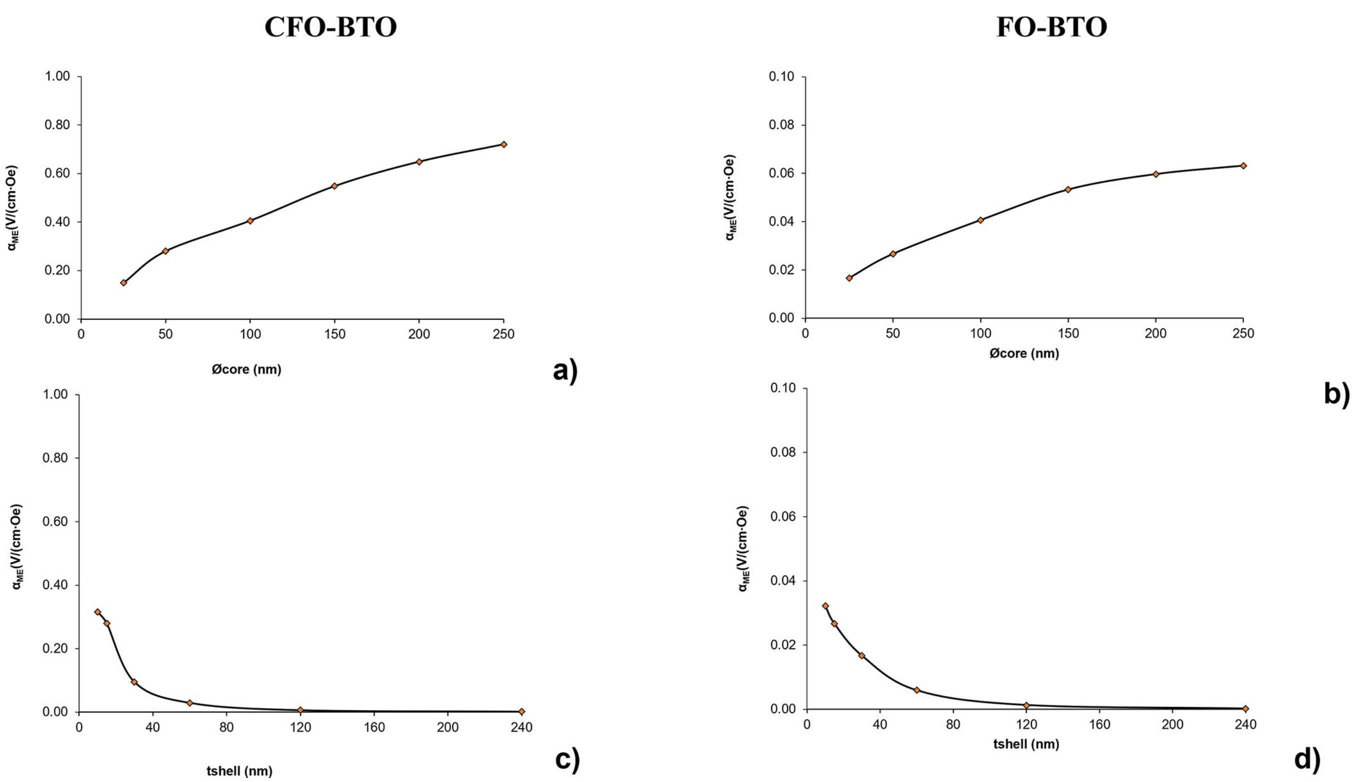

Fig 4. Effect of core and shell size on magnetoelectric coefficient. Trend analysis of variable core size (a and b) and shell thickness (c and d) of CFO-BTO (a and c) and FO-BTO (b and d) MENPs when stimulated with a high strength (> Ms) DC bias magnetic field directed along z on the magnetoelectric coefficient α_{ME} (V/cm·Oe).

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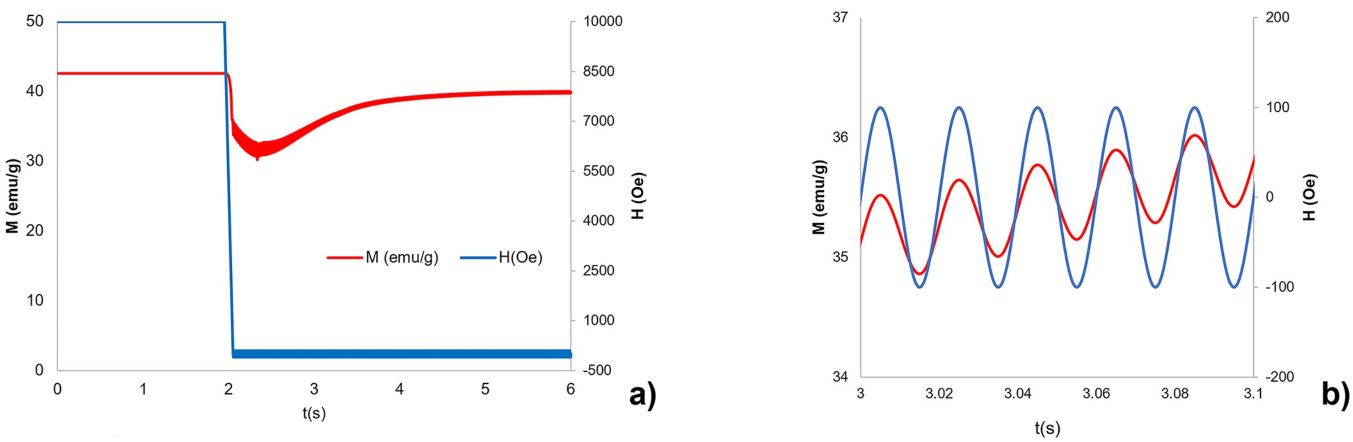

Fig 5. Magnetization of MENP under DC+AC stimulation. Magnetization M(emu/g) (red line) of a CFO core ($Ø_{core}$ = 50 nm)-BTO shell (t_{shell} = 15 nm) nanoparticle under a DC+AC external magnetic field (H (Oe)- blue line) directed along z. a) M(emu/g) as a function of 2 seconds DC high amplitude (H = 10 kOe) magnetic field followed by 4 seconds weak AC (f = 50 Hz, 100 Oe) magnetic field excitation. b) Magnification of Fig 5A in five AC excitation periods.

https://doi.org/10.1371/journal.pone.0314414.g004

Reference

1. Fiocchi S, Chiaramello E, Marrella A, Suarato G, Bonato M, Parazzini M, et al. (2022) Modeling of core-shell magneto-electric nanoparticles for biomedical applications: Effect of composition, dimension, and magnetic field features on magnetoelectric response. PLOS ONE 17(9): e0274676. https://doi.org/10.1371/journal.pone.0274676 PMID: 36149898