

Supplementary Material

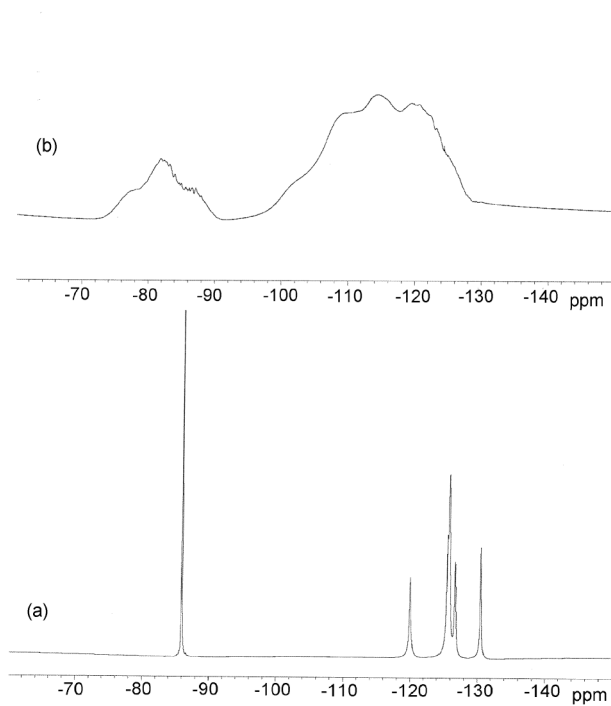


Figure S1 ^{19}F spectra of CsPFO/D₂O in the isotropic (a) and nematic phases (b).

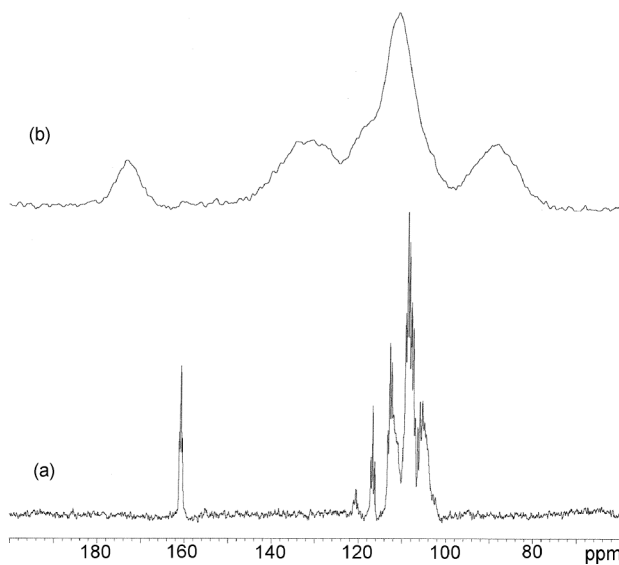


Figure S2 ^{13}C spectra of CsPFO/D₂O in the isotropic (a) and nematic phases (b).

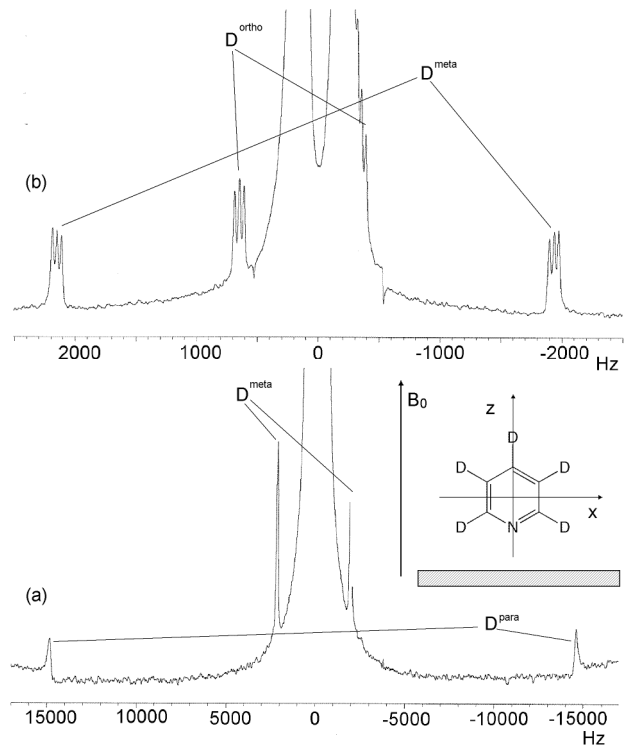


Figure S3 (a) ^2H spectrum of pyridine- d_5 in the nematic phase of CsPFO/ D_2O ($T = 21.3^\circ\text{C}$) (b) expansion of the $-2500 \div 2500$ Hz region (the zero of the frequencies axis has been arbitrarily chosen in the middle of the D_2O doublet). In the inset the molecular frame in which the pyridine order tensor is diagonal is shown, together with the indication of the magnetic field (B_0) direction, parallel to the symmetry axis of the micelle, here sketched as a rectangle.

Table S1 Order parameters of L-alanine in the nematic and lamellar phases of CsPFO/D₂O, both in the (*x*, *y*, *z*) molecular axes frame (see text) and in the principal axes frame of the order tensor itself (see Figure 4). The uncertainties on the results are of some units of the last digit quoted.

	S_{xx}	S_{yy}	S_{zz}	S_{xy}	S_{xz}	S_{yz}
	S^D_{xx}	S^D_{yy}	S^D_{zz}			
$T = 28\text{ }^\circ\text{C}$	-0.015 -0.015	0.018 -0.010	-0.003 0.026	-0.001 -	0.002 -	-0.014 -
$T = 24\text{ }^\circ\text{C}$	-0.021 -0.024	0.027 -0.015	-0.006 0.039	-0.002 -	0.006 -	-0.021 -