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NMR Investigations of Inhomogeneous glassy spin fluctuations in Doped $BaFe_2As_22$

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We present ^{75}As and ^{31}P NMR data in a series of $Ba(Fe_{1-x}M_x)_2As_2$ (M=Ni, Cu, Co) and $BaFe_2(As_{1-x}P_x)_2$ crystals that reveal the a large inhomogeneous distribution of glassy spin dynamics, as well as the coexistence of frozen antiferromagnetic domains in superconducting samples. In underdoped samples, the glassy dynamics turns on below temperatures on the order of 100K, persists in magnetic fields up to 30 Tesla, and is unrelated to a competition between antiferromagnetism and superconductivity. Rather, the glassy spin dynamics are driven by inhomogeneous nematic fluctuations.