Abstract: Let $E \subset \mathbb{R}$ be a closed set of Hausdorff dimension $\alpha$. We prove that if $\alpha$ is sufficiently close to 1, and if $E$ supports a probability measure obeying appropriate dimensionality and Fourier decay conditions, then $E$ contains non-trivial 3-term arithmetic progressions. (Joint work with Malabika Pramanik.)