Let $p$ be a prime number, and consider a noncommutative solenoid $C^*(\mathbb{Z}[\frac{1}{p}] \times \mathbb{Z}[\frac{1}{p}], \Psi_\alpha) = \mathcal{A}_\alpha$ where $\Psi_\alpha$ is a multiplier on $\mathbb{Z}[\frac{1}{p}] \times \mathbb{Z}[\frac{1}{p}]$. The speaker together with F. Latrémolière constructed a Morita equivalence bimodule between $\mathcal{A}_\alpha$ and $\mathcal{A}_\beta$ for a different multiplier $\Psi_\beta$ on $\mathbb{Z}[\frac{1}{p}] \times \mathbb{Z}[\frac{1}{p}]$ using a Heisenberg equivalence bimodule of Rieffel. The bimodule was constructed using the locally compact abelian group $M = [\mathbb{Q}_p \times \mathbb{R}]$, which suggested that $p$-adic harmonic analysis might have additional applications in this situation. This talk will use $p$-adic wavelets to investigate the question of whether the corresponding Hilbert module $\Xi$ between $\mathcal{A}_\alpha$ and $\mathcal{A}_\alpha$ can be viewed as a nested sequence of countably generated Hilbert modules over rotation algebras. (Received January 27, 2014)