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**Composite Fermion Spin Polarization Energy with Finite Layer Thickness**[1] MANSOUR SHAYEGAN, YANG LIU, SUKRET HASDEMIR, LOREN PFEIFFER, KEN WEST, KIRK BALDWIN, Princeton Univ — We study the spin polarization transitions of fractional quantum Hall (FQH) states in the filling range $1 < \nu < 2$ in symmetric quantum wells (QWs), as a function of density. Our results reveal a strong well-width dependence of the critical density $n_C$ and ratio between the Zeeman energy ($E_Z$) normalized to the Coulomb energy ($e^2/4\pi\epsilon l_B$), above which a certain FQH state becomes spin polarized. For example, the $\nu = 7/5$ FQH state becomes spin polarized at about 3 times higher density or 1.7 times larger $E_Z$ in the 31-nm-wide QW than in the 65-nm-wide QW. This well-width dependence of the spin polarization stems from by the finite electron layer thickness in these QWs and the resulting softening of the Coulomb interaction.

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