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Linda Brown Westrick* (lzw299@psu.edu). *Sofic subshifts and completely positive topological entropy*. Preliminary report.

A Turing-complete computation framework arises naturally in the setting of multidimensional shifts of finite type (SFTs). Recently Barbieri and García-Ramos have described an ω_1 -length hierarchy structure among the dynamical systems of completely positive topological entropy (CPTE). They constructed a three-dimensional SFT with rank 3 in that hierarchy, and asked whether there was a two-dimensional rank 3 SFT. We construct, for each computable ordinal α , a two-dimensional sofic shift of CPTE rank α , and show the property of CPTE is Π_1^1 -complete in the class of two-dimensional sofic shifts. We also discuss the question of improving "sofic" to "SFT". All the terms from symbolic dynamics will be explained in the talk. (Received September 25, 2018)